Analytical Results

M, Lkc arb@: **AIR**

Compound	CAS Number	LOR	Unit	Client sample ID: 4747 GARDEN STUDIO Client sampling date / time: 06k=SNk0810 14:88 EN1200432-001	4763 VISUAL ARTS STUDIO 06k=SNk0810 14:88 EN1200432-002	4737 W. WING RM 1 81kFEOk0810 14:88 EN1200432-003	4973 KITCHEN 81kFEOk0810 14:88 EN1200432-004	4770 CAFE 06k=SNk0810 14:88 EN1200432-005
USEPA Air Toxics Method TO15r - Continued								
Benzylchloride	188k33k7	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
1.4-Dichlorobenzene	18+k3+k7	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
1.2-Dichlorobenzene	6XkX8k1	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
1.2.4-Trichlorobenzene	108k90k1	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Hexachlorobutadiene	97k+9k4	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Acetone	+7k+3k1	8dX	hhLn	/ 9d3	/ 6d4	/ 18d6	/ +d8	**10.1**
Bromodichloromethane	7Xk07k3	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
1.3-Butadiene	18+k66k8	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Carbon disulfide	7Xk1Xk8	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
2-Chlorotoluene	6Xk36k9	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
1-Chloro-2-propene (Allyl chloride)	187k8Xk1	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Cyclohexane	118k90k7	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Dibromochloromethane	103k39k1	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
1.4-Dioxane	104k61k1	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Ethylacetate	6880k96kX	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
trans-1.2-Dichloroethene	1X+k+8kX	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Heptane	130k90kX	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Hexane	kkkk	8dX	hhLn	/ 0d1	/ 0d4	**5.7**	**6.1**	**10.6**
Isooctane	kkkk	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Isopropyl Alcohol	+7k+4k8	8dX	hhLn	**2.7**	/ 0d4	/ 0d7	**3.9**	/ 0d0
2-Butanone (MEK)	79k64k4	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Methyl iso-Butyl ketone	189k18k1	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
2-Hexanone (MBK)	X61k79k+	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Propene	11Xk87k1	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Methyl tert-Butyl Ether (MTBE)	1+43k83k3	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Tetrahydrofuran	186k66k6	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Bromoform	7Xk0Xk0	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Vinyl Acetate	189k8Xk3	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Vinyl bromide	X64k+8k0	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Ethanol	+3k17kX	8dX	hhLn	**2.4**	**10.5**	**9.8**	**168**	**5.1**
Acetonitrile	7Xk8Xk9	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Acrolein	187k80k9	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Acrylonitrile	187k14k1	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
tert-Butyl alcohol	7Xk+Xk8	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
2-Chloro-1.3-butadiene	kkkk	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0

Analytical Results

M, Lkc arb@: **AIR**

Compound	CAS Number	LOR	Unit	Client sample ID: 4747 GARDEN STUDIO	4763 VISUAL ARTS STUDIO	4737 W. WING RM 1	4973 KITCHEN	4770 CAFE
			Client sampling date / time	06k=SNk0810 14:88	06k=SNk0810 14:88	81kFEOk0810 14:88	81kFEOk0810 14:88	06k=SNk0810 14:88
				EN1200432-001	EN1200432-002	EN1200432-003	EN1200432-004	EN1200432-005
USEPA Air Toxics Method TO15r - Continued								
Di-isopropyl Ether	kkkk	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Ethyl tert-Butyl Ether (ETBE)	+47k60k4	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
tert-Amyl Methyl Ether (TAME)	663k8Xk9	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Methyl Methacrylate	98k+0k+	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
1.1.1.2-Tetrachloroethane	+48k08k+	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Isopropylbenzene	69k90k9	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
n-Propylbenzene	184k+Xk1	8dX	hhLn	/ 0d1	**3.9**	/ 0d7	/ 1dX	/ 0d0
tert-Butylbenzene	69k8+k+	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
sec-Butylbenzene	14Xk69k9	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
2-isopropyltoluene	kkkk	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
n-Butylbenzene	183kX1k9	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
Naphthalene	61k08k4	8dX	hhLn	/ 0d1	/ 0d4	/ 0d7	/ 1dX	/ 0d0
USEPA Air Toxics Method TO15r (Mass/Volume)								
Freon 12	7Xk71k9	0	µgJv ³	/ 18	/ 10	/ 13	/ 7	/ 11
Chloromethane	73k97k4	1	µgJv ³	/ 3	/ X	/ X	/ 4	/ 3
Freon 114	7+k13k0	3	µgJv ³	/ 1X	/ 1+	/ 16	/ 18	/ 1+
Vinyl chloride	7Xk81k3	1	µgJv ³	/ X	/ +	/ 7	/ 3	/ +
Bromomethane	73k94k6	0	µgJv ³	/ 9	/ 6	/ 18	/ +	/ 9
Chloroethane	7Xk88k4	1	µgJv ³	/ X	/ +	/ 7	/ 3	/ +
Freon 11	7Xk+6k3	4	µgJv ³	/ 10	/ 14	/ 1X	/ 9	/ 10
1.1-Dichloroethene	7Xk4Xk3	0	µgJv ³	/ 9	/ 6	/ 11	/ +	/ 6
Dichloromethane	7Xk86k0	0	µgJv ³	/ 7	**13**	/ 6	/ X	/ 9
Freon 113	7+k14k1	3	µgJv ³	/ 1+	/ 19	/ 01	/ 11	/ 17
1.1-Dichloroethane	7Xk43k4	0	µgJv ³	/ 9	/ 6	/ 11	/ +	/ 6
cis-1.2-Dichloroethene	1X+kX6k0	0	µgJv ³	/ 9	/ 6	/ 11	/ +	/ 6
Chloroform	+7k++k4	0	µgJv ³	/ 18	/ 11	/ 14	/ 7	/ 11
1.2-Dichloroethane	187k8+k0	0	µgJv ³	/ 9	/ 6	/ 11	/ +	/ 6
1.1.1-Trichloroethane	71kXXk+	4	µgJv ³	/ 11	/ 10	/ 1X	/ 9	/ 10
Benzene	71k34k0	0	µgJv ³	/ 7	/ 7	/ 6	/ X	/ 7
Carbon Tetrachloride	X+k04kX	4	µgJv ³	/ 14	/ 13	/ 17	/ 6	/ 13
1.2-Dichloropropane	79k97kX	0	µgJv ³	/ 18	/ 11	/ 10	/ 7	/ 18
Trichloroethene	76k81k+	4	µgJv ³	/ 11	/ 10	/ 1X	/ 9	/ 10
cis-1.3-Dichloropropylene	188+1k81kX	0	µgJv ³	/ 18	/ 11	/ 10	/ 7	/ 18
trans-1.3-Dichloropropene	188+1k80k+	0	µgJv ³	/ 18	/ 11	/ 10	/ 7	/ 18
1.1.2-Trichloroethane	76k88kX	4	µgJv ³	/ 11	/ 10	/ 1X	/ 9	/ 10

Analytical Results

M, Lkc arb0: **AIR**

Compound	CAS Number	LOR	Unit	Client sample ID: 4747 GARDEN STUDIO Client sampling date / time: 06k=SNk0810 14:88 EN1200432-001	Client sample ID: 4763 VISUAL ARTS STUDIO Client sampling date / time: 06k=SNk0810 14:88 EN1200432-002	Client sample ID: 4737 W. WING RM 1 Client sampling date / time: 81kFEOk0810 14:88 EN1200432-003	Client sample ID: 4973 KITCHEN Client sampling date / time: 81kFEOk0810 14:88 EN1200432-004	Client sample ID: 4770 CAFE Client sampling date / time: 06k=SNk0810 14:88 EN1200432-005
USEPA Air Toxics Method TO15r (Mass/Volume) - Continued								
Toluene	189k99k4	0	µgJv ³	**50**	**50**	**12**	**20**	**21**
1.2-Dibromoethane (EDB)	18+k64k3	3	µgJv ³	/ 1+	/ 19	/ 01	/ 11	/ 17
Tetrachloroethene	107k19k3	4	µgJv ³	/ 13	/ 1+	/ 19	/ 18	/ 1X
Chlorobenzene	189k68k7	0	µgJv ³	/ 18	/ 11	/ 10	/ 7	/ 18
Ethylbenzene	188k31k3	0	µgJv ³	/ 6	/ 18	/ 10	/ +	/ 18
meta- & para-Xylene	189k49k4 18+k30k4	3	µgJv ³	/ 19	**95**	/ 04	/ 14	/ 16
Styrene	188k30kX	0	µgJv ³	/ 6	/ 18	/ 11	/ +	/ 6
1.1.2.2-Tetrachloroethane	76k43kX	4	µgJv ³	/ 13	/ 1+	/ 19	/ 18	/ 1X
ortho-Xylene	6Xk37k+	0	µgJv ³	/ 6	**34**	/ 10	/ +	/ 18
4-Ethyltoluene	kkk	0	µgJv ³	/ 18	**37**	/ 13	/ 7	/ 11
Total Xylenes	1448k08k7	+	µgJv ³	/ 04	**129**	/ 48	/ 1+	/ 03
1.3.5-Trimethylbenzene	189k+7k9	0	µgJv ³	/ 18	**66**	/ 13	/ 7	/ 11
1.2.4-Trimethylbenzene	6Xk+4k+	0	µgJv ³	/ 18	**192**	/ 13	/ 7	/ 11
1.3-Dichlorobenzene	X31k74k1	4	µgJv ³	/ 14	/ 13	/ 1+	/ 6	/ 14
Benzylchloride	188k33k7	4	µgJv ³	/ 11	/ 10	/ 13	/ 9	/ 10
1.4-Dichlorobenzene	18+k3+k7	4	µgJv ³	/ 14	/ 13	/ 1+	/ 6	/ 14
1.2-Dichlorobenzene	6XkX8k1	4	µgJv ³	/ 14	/ 13	/ 1+	/ 6	/ 14
1.2.4-Trichlorobenzene	108k90k1	3	µgJv ³	/ 1+	/ 17	/ 08	/ 11	/ 1+
Hexachlorobutadiene	97k+9k4	X	µgJv ³	/ 00	/ 03	/ 06	/ 1+	/ 03
Acetone	+7k+3k1	1	µgJv ³	/ X	/ +	/ +	/ 3	**24**
Bromodichloromethane	7Xk07k3	4	µgJv ³	/ 13	/ 1+	/ 19	/ 18	/ 1X
1.3-Butadiene	18+k66k8	1	µgJv ³	/ X	/ X	/ +	/ 4	/ X
Carbon disulfide	7Xk1Xk8	0	µgJv ³	/ 7	/ 7	/ 6	/ X	/ 7
2-Chlorotoluene	6Xk36k9	4	µgJv ³	/ 11	/ 10	/ 13	/ 9	/ 10
1-Chloro-2-propene (Allyl chloride)	187k8Xk1	0	µgJv ³	/ 7	/ 7	/ 6	/ X	/ 7
Cyclohexane	118k90k7	0	µgJv ³	/ 7	/ 9	/ 6	/ X	/ 9
Dibromochloromethane	103k39k1	3	µgJv ³	/ 19	/ 08	/ 04	/ 14	/ 16
1.4-Dioxane	104k61k1	0	µgJv ³	/ 9	/ 9	/ 18	/ X	/ 9
Ethylacetate	6880k96kX	0	µgJv ³	/ 9	/ 9	/ 18	/ X	/ 9
trans-1.2-Dichloroethene	1X+k+8kX	0	µgJv ³	/ 9	/ 6	/ 11	/ +	/ 6
Heptane	130k90kX	0	µgJv ³	/ 9	/ 6	/ 11	/ +	/ 6
Hexane	kkk	0	µgJv ³	/ 9	/ 9	**20**	**21**	**37**
Isooctane	kkk	0	µgJv ³	/ 18	/ 11	/ 10	/ 7	/ 18
Isopropyl Alcohol	+7k+4k8	1	µgJv ³	**7**	/ +	/ +	**10**	/ X
2-Butanone (MEK)	79k64k4	0	µgJv ³	/ +	/ 7	/ 9	/ 3	/ 7

Analytical Results

M, Lkc arb@: **AIR**

Compound	CAS Number	LOR	Unit	Client sample ID: 4747 GARDEN STUDIO	4763 VISUAL ARTS STUDIO	4737 W. WING RM 1	4973 KITCHEN	4770 CAFE
Client sampling date / time				06k=SNk0810 14:88	06k=SNk0810 14:88	81kFEOk0810 14:88	81kFEOk0810 14:88	06k=SNk0810 14:88
				EN1200432-001	EN1200432-002	EN1200432-003	EN1200432-004	EN1200432-005
USEPA Air Toxics Method TO15r (Mass/Volume) - Continued								
Methyl iso-Butyl ketone	189k18k1	0	µgJv ³	/ 9	/ 6	/ 11	/ +	/ 6
2-Hexanone (MBK)	X61k79k+	0	µgJv ³	/ 9	/ 6	/ 11	/ +	/ 6
Propene	11Xk87k1	8d6	µgJv ³	/ 3	/ 3	/ X	/ 4	/ 3
Methyl tert-Butyl Ether (MTBE)	1+43k83k3	0	µgJv ³	/ 9	/ 9	/ 18	/ X	/ 9
Tetrahydrofuran	186k66k6	0	µgJv ³	/ +	/ 7	/ 9	/ 3	/ 7
Bromoform	7Xk0Xk0	X	µgJv ³	/ 00	/ 03	/ 09	/ 1X	/ 04
Vinyl Acetate	189k8Xk3	0	µgJv ³	/ 9	/ 9	/ 18	/ X	/ 9
Vinyl bromide	X64k+8k0	0	µgJv ³	/ 6	/ 18	/ 10	/ +	/ 18
Ethanol	+3k17kX	8d6	µgJv ³	**4**	**20**	**18**	**316**	**10**
Acetonitrile	7Xk8Xk9	8d9	µgJv ³	/ 4	/ 3	/ 3	/ 0	/ 3
Acrolein	187k80k9	1	µgJv ³	/ X	/ X	/ +	/ 4	/ X
Acrylonitrile	187k14k1	1	µgJv ³	/ X	/ X	/ +	/ 4	/ X
tert-Butyl alcohol	7Xk+Xk8	0	µgJv ³	/ +	/ 7	/ 9	/ 3	/ 7
2-Chloro-1.3-butadiene	kkkk	0	µgJv ³	/ 9	/ 9	/ 18	/ X	/ 9
Di-isopropyl Ether	kkkk	0	µgJv ³	/ 6	/ 18	/ 11	/ +	/ 6
Ethyl tert-Butyl Ether (ETBE)	+47k60k4	0	µgJv ³	/ 6	/ 18	/ 11	/ +	/ 6
tert-Amyl Methyl Ether (TAME)	663k8Xk9	0	µgJv ³	/ 6	/ 18	/ 11	/ +	/ 6
Methyl Methacrylate	98k+0k+	0	µgJv ³	/ 6	/ 18	/ 11	/ +	/ 6
1.1.1.2-Tetrachloroethane	+48k08k+	4	µgJv ³	/ 13	/ 1+	/ 19	/ 18	/ 1X
Isopropylbenzene	69k90k9	0	µgJv ³	/ 18	/ 10	/ 13	/ 7	/ 11
n-Propylbenzene	184k+Xk1	0	µgJv ³	/ 18	**19**	/ 13	/ 7	/ 11
tert-Butylbenzene	69k8+k+	4	µgJv ³	/ 11	/ 10	/ 1X	/ 9	/ 10
sec-Butylbenzene	14Xk69k9	4	µgJv ³	/ 11	/ 10	/ 1X	/ 9	/ 10
2-isopropyltoluene	kkkk	4	µgJv ³	/ 11	/ 10	/ 1X	/ 9	/ 10
n-Butylbenzene	183kX1k9	4	µgJv ³	/ 11	/ 10	/ 1X	/ 9	/ 10
Naphthalene	61k08k4	4	µgJv ³	/ 11	/ 10	/ 13	/ 9	/ 10
USEPA Air Toxics Method TO15r Surrogates								
4-Bromofluorobenzene	3+8k88k3	8d1	%	**97.5**	**103**	**85.8**	**87.9**	**85.6**

Analytical Results

M, Lkc arb@: **AIR**

Compound	CAS Number	LOR	Unit	Client sample ID	4782 DRESSING ROOM	4983 REHEARSAL	4740 THEATRE	4775 SCULPTURE STUDIO	4982 GATE HOUSE
				Client sampling date / time	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88
					EN1200432-006	EN1200432-007	EN1200432-008	EN1200432-009	EN1200432-010
USEPA Air Toxics Method TO15r									
Freon 12	7Xk71k9	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Chloromethane	73k97k4	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Freon 114	7+k13k0	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Vinyl chloride	7Xk81k3	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Bromomethane	73k94k6	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Chloroethane	7Xk88k4	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Freon 11	7Xk+6k3	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
1.1-Dichloroethene	7Xk4Xk3	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Dichloromethane	7Xk86k0	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Freon 113	7+k14k1	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
1.1-Dichloroethane	7Xk43k4	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
cis-1.2-Dichloroethene	1X+kX6k0	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Chloroform	+7k++k4	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
1.2-Dichloroethane	187k8+k0	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
1.1.1-Trichloroethane	71kXXk+	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Benzene	71k34k0	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	**2.9**	/ 0d0
Carbon Tetrachloride	X+k04kX	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
1.2-Dichloropropane	79k97kX	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Trichloroethene	76k81k+	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
cis-1.3-Dichloropropylene	188+1k81kX	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
trans-1.3-Dichloropropene	188+1k80k+	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
1.1.2-Trichloroethane	76k88kX	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Toluene	189k99k4	8dX	hhLn		**16.9**	/ 0d0	**9.1**	**54.1**	/ 0d0
1.2-Dibromoethane (EDB)	18+k64k3	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Tetrachloroethene	107k19k3	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Chlorobenzene	189k68k7	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Ethylbenzene	188k31k3	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	**2.8**	/ 0d0
meta- & para-Xylene	189k49k4 18+k30k4	1dB	hhLn		/ 0d+	/ 3d8	/ 4d8	**12.7**	/ 3dK
Styrene	188k30kX	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	**6.6**	/ 0d0
1.1.2.2-Tetrachloroethane	76k43kX	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
ortho-Xylene	6Xk37k+	8dX	hhLn		/ 0d+	/ 3d8	/ 4d8	/ 3d+	/ 0d0
4-Ethyltoluene	kkk	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
1.3.5-Trimethylbenzene	189k+7k9	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
1.2.4-Trimethylbenzene	6Xk+4k+	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
1.3-Dichlorobenzene	X31k74k1	8dX	hhLn		/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0

Analytical Results

M, Lkc arb0: **AIR**

Compound	CAS Number	LOR	Unit	Client sample ID: 4782 DRESSING ROOM	4983 REHEARSAL	4740 THEATRE	4775 SCULPTURE STUDIO	4982 GATE HOUSE
			Client sampling date / time	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88
				EN1200432-006	EN1200432-007	EN1200432-008	EN1200432-009	EN1200432-010
USEPA Air Toxics Method TO15r - Continued								
Benzylchloride	188k33k7	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
1.4-Dichlorobenzene	18+k3+k7	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
1.2-Dichlorobenzene	6XkX8k1	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
1.2.4-Trichlorobenzene	108k90k1	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Hexachlorobutadiene	97k+9k4	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Acetone	+7k+3k1	8dX	hhLn	**15.8**	/ 9d9	**9.7**	**41.4**	/ 6d8
Bromodichloromethane	7Xk07k3	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
1.3-Butadiene	18+k66k8	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Carbon disulfide	7Xk1Xk8	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
2-Chlorotoluene	6Xk36k9	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
1-Chloro-2-propene (Allyl chloride)	187k8Xk1	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Cyclohexane	118k90k7	8dX	hhLn	**3.5**	/ 0d0	**1.8**	**6.1**	/ 0d0
Dibromochloromethane	103k39k1	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
1.4-Dioxane	104k61k1	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Ethylacetate	6880k96kX	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	**4.8**	/ 0d0
trans-1.2-Dichloroethene	1X+k+8kX	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Heptane	130k90kX	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Hexane	kkkk	8dX	hhLn	**38.9**	/ 0d0	**18.9**	**18.7**	/ 0d0
Isooctane	kkkk	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Isopropyl Alcohol	+7k+4k8	8dX	hhLn	**4.5**	/ 0d0	/ 1dK	/ 0d4	**2.7**
2-Butanone (MEK)	79k64k4	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	**4.0**	/ 0d0
Methyl iso-Butyl ketone	189k18k1	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
2-Hexanone (MBK)	X61k79k+	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Propene	11Xk87k1	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Methyl tert-Butyl Ether (MTBE)	1+43k83k3	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Tetrahydrofuran	186k66k6	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Bromoform	7Xk0Xk0	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Vinyl Acetate	189k8Xk3	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Vinyl bromide	X64k+8k0	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Ethanol	+3k17kX	8dX	hhLn	**43.6**	**34.4**	**10.0**	**7.2**	/ 0d0
Acetonitrile	7Xk8Xk9	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Acrolein	187k80k9	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Acrylonitrile	187k14k1	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
tert-Butyl alcohol	7Xk+Xk8	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
2-Chloro-1.3-butadiene	kkkk	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0

Analytical Results

M, Lkc arb@: **AIR**

Compound	CAS Number	LOR	Unit	Client sample ID: 4782 DRESSING ROOM	4983 REHEARSAL	4740 THEATRE	4775 SCULPTURE STUDIO	4982 GATE HOUSE
			Client sampling date / time	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88
				EN1200432-006	EN1200432-007	EN1200432-008	EN1200432-009	EN1200432-010
USEPA Air Toxics Method TO15r - Continued								
Di-isopropyl Ether	kkkk	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Ethyl tert-Butyl Ether (ETBE)	+47k60k4	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
tert-Amyl Methyl Ether (TAME)	663k8Xk9	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Methyl Methacrylate	98k+0k+	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
1.1.1.2-Tetrachloroethane	+48k08k+	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Isopropylbenzene	69k90k9	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
n-Propylbenzene	184k+Xk1	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
tert-Butylbenzene	69k8+k+	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
sec-Butylbenzene	14Xk69k9	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
2-isopropyltoluene	kkkk	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
n-Butylbenzene	183kX1k9	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
Naphthalene	61k08k4	8dX	hhLn	/ 1d4	/ 0d0	/ 1dK	/ 0d4	/ 0d0
USEPA Air Toxics Method TO15r (Mass/Volume)								
Freon 12	7Xk71k9	0	µgJv ³	/ +	/ 11	/ 9	/ 11	/ 10
Chloromethane	73k97k4	1	µgJv ³	/ 4	/ 3	/ 4	/ 3	/ X
Freon 114	7+k13k0	3	µgJv ³	/ 6	/ 1+	/ 18	/ 1+	/ 1+
Vinyl chloride	7Xk81k3	1	µgJv ³	/ 4	/ +	/ 3	/ +	/ +
Bromomethane	73k94k6	0	µgJv ³	/ X	/ 9	/ +	/ 6	/ 6
Chloroethane	7Xk88k4	1	µgJv ³	/ 4	/ +	/ 3	/ +	/ +
Freon 11	7Xk+6k3	4	µgJv ³	/ 7	/ 10	/ 9	/ 14	/ 14
1.1-Dichloroethene	7Xk4Xk3	0	µgJv ³	/ X	/ 6	/ +	/ 6	/ 6
Dichloromethane	7Xk86k0	0	µgJv ³	/ 3	/ 9	/ X	/ 9	/ 9
Freon 113	7+k14k1	3	µgJv ³	/ 18	/ 17	/ 11	/ 17	/ 19
1.1-Dichloroethane	7Xk43k4	0	µgJv ³	/ X	/ 6	/ +	/ 6	/ 6
cis-1.2-Dichloroethene	1X+kX6k0	0	µgJv ³	/ X	/ 6	/ +	/ 6	/ 6
Chloroform	+7k++k4	0	µgJv ³	/ +	/ 11	/ 7	/ 11	/ 11
1.2-Dichloroethane	187k8+k0	0	µgJv ³	/ X	/ 6	/ +	/ 6	/ 6
1.1.1-Trichloroethane	71kXXk+	4	µgJv ³	/ 7	/ 10	/ 9	/ 10	/ 10
Benzene	71k34k0	0	µgJv ³	/ 3	/ 7	/ X	**9**	/ 7
Carbon Tetrachloride	X+k04kX	4	µgJv ³	/ 9	/ 13	/ 6	/ 13	/ 13
1.2-Dichloropropane	79k97kX	0	µgJv ³	/ +	/ 18	/ 7	/ 18	/ 11
Trichloroethene	76k81k+	4	µgJv ³	/ 7	/ 10	/ 9	/ 10	/ 10
cis-1.3-Dichloropropylene	188+1k81kX	0	µgJv ³	/ +	/ 18	/ 7	/ 18	/ 11
trans-1.3-Dichloropropene	188+1k80k+	0	µgJv ³	/ +	/ 18	/ 7	/ 18	/ 11
1.1.2-Trichloroethane	76k88kX	4	µgJv ³	/ 7	/ 10	/ 9	/ 10	/ 10

Analytical Results

M, Lkc arb2: **AIR**

Compound	CAS Number	LOR	Unit	Client sample ID: 4782 DRESSING ROOM	4983 REHEARSAL	4740 THEATRE	4775 SCULPTURE STUDIO	4982 GATE HOUSE
			Client sampling date / time	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88
				EN1200432-006	EN1200432-007	EN1200432-008	EN1200432-009	EN1200432-010
USEPA Air Toxics Method TO15r (Mass/Volume) - Continued								
Toluene	189k99k4	0	µgJv ³	**64**	/ 9	**34**	**204**	/ 6
1.2-Dibromoethane (EDB)	18+k64k3	3	µgJv ³	/ 18	/ 17	/ 11	/ 17	/ 19
Tetrachloroethene	107k19k3	4	µgJv ³	/ 6	/ 1X	/ 18	/ 1+	/ 1+
Chlorobenzene	189k68k7	0	µgJv ³	/ +	/ 18	/ 7	/ 18	/ 11
Ethylbenzene	188k31k3	0	µgJv ³	/ +	/ 18	/ 7	**12**	/ 18
meta- & para-Xylene	189k49k4 18+k30k4	3	µgJv ³	/ 11	/ 16	/ 14	**55**	/ 08
Styrene	188k30kX	0	µgJv ³	/ +	/ 6	/ +	**28**	/ 18
1.1.2.2-Tetrachloroethane	76k43kX	4	µgJv ³	/ 6	/ 1X	/ 18	/ 1+	/ 1+
ortho-Xylene	6Xk37k+	0	µgJv ³	/ +	/ 18	/ 7	/ 18	/ 18
4-Ethyltoluene	kkk	0	µgJv ³	/ +	/ 11	/ 9	/ 11	/ 10
Total Xylenes	1448k08k7	+	µgJv ³	/ 13	/ 03	/ 1+	**55**	/ 0+
1.3.5-Trimethylbenzene	189k+7k9	0	µgJv ³	/ +	/ 11	/ 9	/ 11	/ 10
1.2.4-Trimethylbenzene	6Xk+4k+	0	µgJv ³	/ +	/ 11	/ 9	/ 11	/ 10
1.3-Dichlorobenzene	X31k74k1	4	µgJv ³	/ 9	/ 14	/ 6	/ 13	/ 13
Benzylchloride	188k33k7	4	µgJv ³	/ 7	/ 10	/ 9	/ 10	/ 10
1.4-Dichlorobenzene	18+k3+k7	4	µgJv ³	/ 9	/ 14	/ 6	/ 13	/ 13
1.2-Dichlorobenzene	6XkX8k1	4	µgJv ³	/ 9	/ 14	/ 6	/ 13	/ 13
1.2.4-Trichlorobenzene	108k90k1	3	µgJv ³	/ 18	/ 1+	/ 11	/ 17	/ 17
Hexachlorobutadiene	97k+9k4	X	µgJv ³	/ 13	/ 04	/ 1+	/ 03	/ 0X
Acetone	+7k+3k1	1	µgJv ³	**38**	/ X	**23**	**98**	/ +
Bromodichloromethane	7Xk07k3	4	µgJv ³	/ 6	/ 1X	/ 18	/ 1+	/ 1+
1.3-Butadiene	18+k66k8	1	µgJv ³	/ 4	/ X	/ 4	/ X	/ X
Carbon disulfide	7Xk1Xk8	0	µgJv ³	/ 3	/ 7	/ X	/ 7	/ 7
2-Chlorotoluene	6Xk36k9	4	µgJv ³	/ 7	/ 10	/ 9	/ 10	/ 10
1-Chloro-2-propene (Allyl chloride)	187k8Xk1	0	µgJv ³	/ 3	/ 7	/ X	/ 7	/ 7
Cyclohexane	118k90k7	0	µgJv ³	**12**	/ 9	**6**	**21**	/ 9
Dibromochloromethane	103k39k1	3	µgJv ³	/ 11	/ 16	/ 14	/ 08	/ 08
1.4-Dioxane	104k61k1	0	µgJv ³	/ X	/ 9	/ X	/ 9	/ 9
Ethylacetate	6880k96kX	0	µgJv ³	/ X	/ 9	/ X	**17**	/ 9
trans-1.2-Dichloroethene	1X+k+8kX	0	µgJv ³	/ X	/ 6	/ +	/ 6	/ 6
Heptane	130k90kX	0	µgJv ³	/ X	/ 6	/ +	/ 6	/ 6
Hexane	kkk	0	µgJv ³	**137**	/ 9	**66**	**66**	/ 9
Isooctane	kkk	0	µgJv ³	/ +	/ 18	/ 7	/ 18	/ 11
Isopropyl Alcohol	+7k+4k8	1	µgJv ³	**11**	/ X	/ 3	/ +	**7**
2-Butanone (MEK)	79k64k4	0	µgJv ³	/ 3	/ 7	/ 3	**12**	/ 7

Analytical Results

M, Lkc arb0: **AIR**

Compound	CAS Number	LOR	Unit	Client sample ID: 4782 DRESSING ROOM	4983 REHEARSAL	4740 THEATRE	4775 SCULPTURE STUDIO	4982 GATE HOUSE
Client sampling date / time				06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88
				EN1200432-006	EN1200432-007	EN1200432-008	EN1200432-009	EN1200432-010
USEPA Air Toxics Method TO15r (Mass/Volume) - Continued								
Methyl iso-Butyl ketone	189k18k1	0	µgJv ³	/ X	/ 6	/ +	/ 6	/ 6
2-Hexanone (MBK)	X61k79k+	0	µgJv ³	/ X	/ 6	/ +	/ 6	/ 6
Propene	11Xk87k1	8d6	µgJv ³	/ 0	/ 3	/ 4	/ 3	/ 3
Methyl tert-Butyl Ether (MTBE)	1+43k83k3	0	µgJv ³	/ X	/ 9	/ X	/ 9	/ 9
Tetrahydrofuran	186k66k6	0	µgJv ³	/ 3	/ 7	/ 3	/ 7	/ 7
Bromoform	7Xk0Xk0	X	µgJv ³	/ 13	/ 04	/ 1+	/ 03	/ 03
Vinyl Acetate	189k8Xk3	0	µgJv ³	/ X	/ 9	/ X	/ 9	/ 9
Vinyl bromide	X64k+8k0	0	µgJv ³	/ +	/ 18	/ 7	/ 18	/ 18
Ethanol	+3k17kX	8d6	µgJv ³	**82**	**65**	**19**	**14**	/ 3
Acetonitrile	7Xk8Xk9	8d9	µgJv ³	/ 0	/ 3	/ 0	/ 3	/ 3
Acrolein	187k80k9	1	µgJv ³	/ 4	/ X	/ 4	/ X	/ X
Acrylonitrile	187k14k1	1	µgJv ³	/ 4	/ X	/ 4	/ X	/ X
tert-Butyl alcohol	7Xk+Xk8	0	µgJv ³	/ 3	/ 7	/ 3	/ 7	/ 7
2-Chloro-1.3-butadiene	kkk	0	µgJv ³	/ X	/ 9	/ X	/ 9	/ 9
Di-isopropyl Ether	kkk	0	µgJv ³	/ +	/ 6	/ +	/ 18	/ 18
Ethyl tert-Butyl Ether (ETBE)	+47k60k4	0	µgJv ³	/ +	/ 6	/ +	/ 18	/ 18
tert-Amyl Methyl Ether (TAME)	663k8Xk9	0	µgJv ³	/ +	/ 6	/ +	/ 18	/ 18
Methyl Methacrylate	98k+0k+	0	µgJv ³	/ +	/ 6	/ +	/ 18	/ 18
1.1.1.2-Tetrachloroethane	+48k08k+	4	µgJv ³	/ 6	/ 1X	/ 18	/ 1+	/ 1+
Isopropylbenzene	69k90k9	0	µgJv ³	/ +	/ 11	/ 9	/ 11	/ 10
n-Propylbenzene	184k+Xk1	0	µgJv ³	/ +	/ 11	/ 9	/ 11	/ 10
tert-Butylbenzene	69k8+k+	4	µgJv ³	/ 7	/ 10	/ 9	/ 10	/ 10
sec-Butylbenzene	14Xk69k9	4	µgJv ³	/ 7	/ 10	/ 9	/ 10	/ 10
2-isopropyltoluene	kkk	4	µgJv ³	/ 7	/ 10	/ 9	/ 10	/ 10
n-Butylbenzene	183kX1k9	4	µgJv ³	/ 7	/ 10	/ 9	/ 10	/ 10
Naphthalene	61k08k4	4	µgJv ³	/ 7	/ 10	/ 9	/ 10	/ 10
USEPA Air Toxics Method TO15r Surrogates								
4-Bromofluorobenzene	3+8k88k3	8d1	%	**86.3**	**86.3**	**86.9**	**89.6**	**84.7**

Analytical Results

M, Lkc arb@: **AIR**

Compound	CAS Number	LOR	Unit	Client sample ID: 4768 ADMINISTRATION	4977 BACKGROUND	4777 DUPLICATE 1	4741 CERAMICS STUDIO	4760 WORKSHOP
Client sampling date / time				06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88
				EN1200432-011	EN1200432-012	EN1200432-013	EN1200432-014	EN1200432-015
USEPA Air Toxics Method TO15r								
Freon 12	7Xk71k9	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Chloromethane	73k97k4	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Freon 114	7+k13k0	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Vinyl chloride	7Xk81k3	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Bromomethane	73k94k6	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Chloroethane	7Xk88k4	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Freon 11	7Xk+6k3	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
1.1-Dichloroethene	7Xk4Xk3	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Dichloromethane	7Xk86k0	8dX	hhLn	**2.5**	/ 0d4	/ 1d8	**12.4**	/ 1d4
Freon 113	7+k14k1	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
1.1-Dichloroethane	7Xk43k4	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
cis-1.2-Dichloroethene	1X+kX6k0	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Chloroform	+7k++k4	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
1.2-Dichloroethane	187k8+k0	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
1.1.1-Trichloroethane	71kXXk+	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Benzene	71k34k0	8dX	hhLn	/ 0d4	/ 0d4	**2.7**	/ 0dX	/ 1d4
Carbon Tetrachloride	X+k04kX	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
1.2-Dichloropropane	79k97kX	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Trichloroethene	76k81k+	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
cis-1.3-Dichloropropylene	188+1k81kX	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
trans-1.3-Dichloropropene	188+1k80k+	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
1.1.2-Trichloroethane	76k88kX	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Toluene	189k99k4	8dX	hhLn	**2.7**	/ 0d4	**60.4**	/ 0dX	**59.1**
1.2-Dibromoethane (EDB)	18+k64k3	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Tetrachloroethene	107k19k3	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Chlorobenzene	189k68k7	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Ethylbenzene	188k31k3	8dX	hhLn	/ 0d4	/ 0d4	**2.6**	/ 0dX	/ 1d4
meta- & para-Xylene	189k49k4 18+k30k4	1d8	hhLn	/ 3d+	/ 3dX	**12.7**	/ 3d6	/ 0d+
Styrene	188k30kX	8dX	hhLn	/ 0d4	/ 0d4	**8.0**	/ 0dX	/ 1d4
1.1.2.2-Tetrachloroethane	76k43kX	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
ortho-Xylene	6Xk37k+	8dX	hhLn	/ 0d4	/ 0d4	**3.5**	/ 0dX	/ 1d4
4-Ethyltoluene	kkk	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
1.3.5-Trimethylbenzene	189k+7k9	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
1.2.4-Trimethylbenzene	6Xk+4k+	8dX	hhLn	/ 0d4	/ 0d4	**2.0**	/ 0dX	/ 1d4
1.3-Dichlorobenzene	X31k74k1	8dX	hhLn	/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4

Analytical Results

M, Lkc arb@: **AIR**

Compound	CAS Number	LOR	Unit	Client sample ID	4768 ADMINISTRATION	4977 BACKGROUND	4777 DUPLICATE 1	4741 CERAMICS STUDIO	4760 WORKSHOP
				Client sampling date / time	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88
					EN1200432-011	EN1200432-012	EN1200432-013	EN1200432-014	EN1200432-015
USEPA Air Toxics Method TO15r - Continued									
Benzylchloride	188k33k7	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
1.4-Dichlorobenzene	18+k3+k7	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
1.2-Dichlorobenzene	6XkX8k1	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
1.2.4-Trichlorobenzene	108k90k1	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Hexachlorobutadiene	97k+9k4	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Acetone	+7k+3k1	8dX	hhLn		/ 6d1	/ 6d1	**42.0**	/ 6d6	**19.9**
Bromodichloromethane	7Xk07k3	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
1.3-Butadiene	18+k66k8	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Carbon disulfide	7Xk1Xk8	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
2-Chlorotoluene	6Xk36k9	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
1-Chloro-2-propene (Allyl chloride)	187k8Xk1	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Cyclohexane	118k90k7	8dX	hhLn		/ 0d4	/ 0d4	**6.6**	/ 0dX	**9.6**
Dibromochloromethane	103k39k1	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
1.4-Dioxane	104k61k1	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Ethylacetate	6880k96kX	8dX	hhLn		/ 0d4	/ 0d4	**6.6**	/ 0dX	/ 1d4
trans-1.2-Dichloroethene	1X+k+8kX	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Heptane	130k90kX	8dX	hhLn		/ 0d4	/ 0d4	**1.9**	/ 0dX	/ 1d4
Hexane	kkkk	8dX	hhLn		/ 0d4	/ 0d4	**18.6**	/ 0dX	**108**
Isooctane	kkkk	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Isopropyl Alcohol	+7k+4k8	8dX	hhLn		**6.8**	/ 0d4	/ 1d8	/ 0dX	**1.6**
2-Butanone (MEK)	79k64k4	8dX	hhLn		/ 0d4	/ 0d4	**3.9**	/ 0dX	**4.3**
Methyl iso-Butyl ketone	189k18k1	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
2-Hexanone (MBK)	X61k79k+	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Propene	11Xk87k1	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Methyl tert-Butyl Ether (MTBE)	1+43k83k3	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Tetrahydrofuran	186k66k6	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Bromoform	7Xk0Xk0	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Vinyl Acetate	189k8Xk3	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Vinyl bromide	X64k+8k0	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Ethanol	+3k17kX	8dX	hhLn		**5.1**	/ 0d4	**6.9**	**26.0**	**18.4**
Acetonitrile	7Xk8Xk9	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Acrolein	187k80k9	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
Acrylonitrile	187k14k1	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
tert-Butyl alcohol	7Xk+Xk8	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4
2-Chloro-1.3-butadiene	kkkk	8dX	hhLn		/ 0d4	/ 0d4	/ 1d8	/ 0dX	/ 1d4

Analytical Results

M, Lkc arb@: **AIR**

Compound	CAS Number	LOR	Unit	Client sample ID	4768 ADMINISTRATION	4977 BACKGROUND	4777 DUPLICATE 1	4741 CERAMICS STUDIO	4760 WORKSHOP
				Client sampling date / time	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88
					EN1200432-011	EN1200432-012	EN1200432-013	EN1200432-014	EN1200432-015
USEPA Air Toxics Method TO15r - Continued									
Di-isopropyl Ether	kkkk	8dX	hhLn		/ 0d4	/ 0d4	/ 1d3	/ 0dX	/ 1d4
Ethyl tert-Butyl Ether (ETBE)	+47k60k4	8dX	hhLn		/ 0d4	/ 0d4	/ 1d3	/ 0dX	/ 1d4
tert-Amyl Methyl Ether (TAME)	663k8Xk9	8dX	hhLn		/ 0d4	/ 0d4	/ 1d3	/ 0dX	/ 1d4
Methyl Methacrylate	98k+0k+	8dX	hhLn		/ 0d4	/ 0d4	/ 1d3	/ 0dX	/ 1d4
1.1.1.2-Tetrachloroethane	+48k08k+	8dX	hhLn		/ 0d4	/ 0d4	/ 1d3	/ 0dX	/ 1d4
Isopropylbenzene	69k90k9	8dX	hhLn		/ 0d4	/ 0d4	/ 1d3	/ 0dX	/ 1d4
n-Propylbenzene	184k+Xk1	8dX	hhLn		/ 0d4	/ 0d4	/ 1d3	/ 0dX	/ 1d4
tert-Butylbenzene	69k8+k+	8dX	hhLn		/ 0d4	/ 0d4	/ 1d3	/ 0dX	/ 1d4
sec-Butylbenzene	14Xk69k9	8dX	hhLn		/ 0d4	/ 0d4	/ 1d3	/ 0dX	/ 1d4
2-isopropyltoluene	kkkk	8dX	hhLn		/ 0d4	/ 0d4	/ 1d3	/ 0dX	/ 1d4
n-Butylbenzene	183kX1k9	8dX	hhLn		/ 0d4	/ 0d4	/ 1d3	/ 0dX	/ 1d4
Naphthalene	61k08k4	8dX	hhLn		/ 0d4	/ 0d4	/ 1d3	/ 0dX	**2.4**
USEPA Air Toxics Method TO15r (Mass/Volume)									
Freon 12	7Xk71k9	0	µgJv ³		/ 11	/ 11	/ 7	/ 10	/ +
Chloromethane	73k97k4	1	µgJv ³		/ 3	/ 3	/ 4	/ X	/ 0
Freon 114	7+k13k0	3	µgJv ³		/ 1+	/ 1+	/ 18	/ 17	/ 6
Vinyl chloride	7Xk81k3	1	µgJv ³		/ +	/ +	/ 3	/ +	/ 4
Bromomethane	73k94k6	0	µgJv ³		/ 6	/ 6	/ X	/ 6	/ X
Chloroethane	7Xk88k4	1	µgJv ³		/ +	/ +	/ 3	/ +	/ 4
Freon 11	7Xk+6k3	4	µgJv ³		/ 14	/ 14	/ 9	/ 13	/ 7
1.1-Dichloroethene	7Xk4Xk3	0	µgJv ³		/ 6	/ 6	/ +	/ 18	/ X
Dichloromethane	7Xk86k0	0	µgJv ³		**9**	/ 9	/ X	**43**	/ 3
Freon 113	7+k14k1	3	µgJv ³		/ 17	/ 17	/ 18	/ 16	/ 18
1.1-Dichloroethane	7Xk43k4	0	µgJv ³		/ 6	/ 6	/ +	/ 18	/ X
cis-1.2-Dichloroethene	1X+kX6k0	0	µgJv ³		/ 6	/ 6	/ +	/ 18	/ X
Chloroform	+7k++k4	0	µgJv ³		/ 11	/ 11	/ 7	/ 10	/ +
1.2-Dichloroethane	187k8+k0	0	µgJv ³		/ 6	/ 6	/ +	/ 18	/ X
1.1.1-Trichloroethane	71kXXk+	4	µgJv ³		/ 10	/ 10	/ 9	/ 14	/ 7
Benzene	71k34k0	0	µgJv ³		/ 7	/ 7	**9**	/ 9	/ 3
Carbon Tetrachloride	X+k04kX	4	µgJv ³		/ 13	/ 13	/ 6	/ 1X	/ 9
1.2-Dichloropropane	79k97kX	0	µgJv ³		/ 18	/ 18	/ +	/ 11	/ +
Trichloroethene	76k81k+	4	µgJv ³		/ 10	/ 10	/ 9	/ 14	/ 7
cis-1.3-Dichloropropylene	188+1k81kX	0	µgJv ³		/ 18	/ 18	/ +	/ 11	/ +
trans-1.3-Dichloropropene	188+1k80k+	0	µgJv ³		/ 18	/ 18	/ +	/ 11	/ +
1.1.2-Trichloroethane	76k88kX	4	µgJv ³		/ 10	/ 10	/ 9	/ 14	/ 7

Analytical Results

M, Lkc arb@: **AIR**

Compound	CAS Number	LOR	Unit	Client sample ID: 4768 ADMINISTRATION	4977 BACKGROUND	4777 DUPLICATE 1	4741 CERAMICS STUDIO	4760 WORKSHOP
Client sampling date / time				06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88
				EN1200432-011	EN1200432-012	EN1200432-013	EN1200432-014	EN1200432-015
USEPA Air Toxics Method TO15r (Mass/Volume) - Continued								
Toluene	189k99k4	0	µgJv ³	**10**	/ 6	**227**	/ 6	**222**
1.2-Dibromoethane (EDB)	18+k64k3	3	µgJv ³	/ 17	/ 17	/ 18	/ 16	/ 18
Tetrachloroethene	107k19k3	4	µgJv ³	/ 1X	/ 1X	/ 6	/ 17	/ 6
Chlorobenzene	189k68k7	0	µgJv ³	/ 18	/ 18	/ +	/ 11	/ +
Ethylbenzene	188k31k3	0	µgJv ³	/ 18	/ 18	**11**	/ 11	/ +
meta- & para-Xylene	189k49k4 18+k30k4	3	µgJv ³	/ 08	/ 08	**55**	/ 01	/ 11
Styrene	188k30kX	0	µgJv ³	/ 18	/ 18	**34**	/ 18	/ X
1.1.2.2-Tetrachloroethane	76k43kX	4	µgJv ³	/ 1X	/ 1X	/ 6	/ 17	/ 6
ortho-Xylene	6Xk37k+	0	µgJv ³	/ 18	/ 18	**15**	/ 11	/ +
4-Ethyltoluene	kkk	0	µgJv ³	/ 11	/ 11	/ 7	/ 10	/ +
Total Xylenes	1448k08k7	+	µgJv ³	/ 0X	/ 0X	**70**	/ 07	/ 13
1.3.5-Trimethylbenzene	189k+7k9	0	µgJv ³	/ 11	/ 11	/ 7	/ 10	/ +
1.2.4-Trimethylbenzene	6Xk+4k+	0	µgJv ³	/ 11	/ 11	**10**	/ 10	/ +
1.3-Dichlorobenzene	X31k74k1	4	µgJv ³	/ 13	/ 13	/ 9	/ 1X	/ 9
Benzylchloride	188k33k7	4	µgJv ³	/ 10	/ 10	/ 7	/ 14	/ 7
1.4-Dichlorobenzene	18+k3+k7	4	µgJv ³	/ 13	/ 13	/ 9	/ 1X	/ 9
1.2-Dichlorobenzene	6XkX8k1	4	µgJv ³	/ 13	/ 13	/ 9	/ 1X	/ 9
1.2.4-Trichlorobenzene	108k90k1	3	µgJv ³	/ 17	/ 17	/ 18	/ 19	/ 6
Hexachlorobutadiene	97k+9k4	X	µgJv ³	/ 03	/ 03	/ 1X	/ 0+	/ 13
Acetone	+7k+3k1	1	µgJv ³	/ X	/ X	**100**	/ +	**47**
Bromodichloromethane	7Xk07k3	4	µgJv ³	/ 1X	/ 1X	/ 6	/ 17	/ 6
1.3-Butadiene	18+k66k8	1	µgJv ³	/ X	/ X	/ 4	/ X	/ 4
Carbon disulfide	7Xk1Xk8	0	µgJv ³	/ 7	/ 7	/ 3	/ 9	/ 3
2-Chlorotoluene	6Xk36k9	4	µgJv ³	/ 10	/ 10	/ 7	/ 14	/ 7
1-Chloro-2-propene (Allyl chloride)	187k8Xk1	0	µgJv ³	/ 7	/ 7	/ 3	/ 9	/ 3
Cyclohexane	118k90k7	0	µgJv ³	/ 9	/ 9	**23**	/ 9	**33**
Dibromochloromethane	103k39k1	3	µgJv ³	/ 08	/ 08	/ 10	/ 01	/ 11
1.4-Dioxane	104k61k1	0	µgJv ³	/ 9	/ 9	/ X	/ 6	/ X
Ethylacetate	6880k96kX	0	µgJv ³	/ 9	/ 9	**24**	/ 6	/ X
trans-1.2-Dichloroethene	1X+k+8kX	0	µgJv ³	/ 6	/ 6	/ +	/ 18	/ X
Heptane	130k90kX	0	µgJv ³	/ 6	/ 6	**8**	/ 18	/ X
Hexane	kkk	0	µgJv ³	/ 9	/ 9	**66**	/ 6	**380**
Isooctane	kkk	0	µgJv ³	/ 18	/ 18	/ +	/ 11	/ +
Isopropyl Alcohol	+7k+4k8	1	µgJv ³	**17**	/ X	/ 4	/ +	**4**
2-Butanone (MEK)	79k64k4	0	µgJv ³	/ 7	/ 7	**11**	/ 7	**13**

Analytical Results

M, Lkc arb@: **AIR**

Compound	CAS Number	LOR	Unit	Client sample ID: 4768 ADMINISTRATION	4977 BACKGROUND	4777 DUPLICATE 1	4741 CERAMICS STUDIO	4760 WORKSHOP
Client sampling date / time				06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88	06k=SNk0810 14:88
				EN1200432-011	EN1200432-012	EN1200432-013	EN1200432-014	EN1200432-015
USEPA Air Toxics Method TO15r (Mass/Volume) - Continued								
Methyl iso-Butyl ketone	189k18k1	0	µgJv ³	/ 6	/ 6	/ +	/ 18	/ X
2-Hexanone (MBK)	X61k79k+	0	µgJv ³	/ 6	/ 6	/ +	/ 18	/ X
Propene	11Xk87k1	8d6	µgJv ³	/ 3	/ 3	/ 0	/ 3	/ 0
Methyl tert-Butyl Ether (MTBE)	1+43k83k3	0	µgJv ³	/ 9	/ 9	/ X	/ 6	/ X
Tetrahydrofuran	186k66k6	0	µgJv ³	/ 7	/ 7	/ 3	/ 7	/ 3
Bromoform	7Xk0Xk0	X	µgJv ³	/ 03	/ 03	/ 13	/ 0+	/ 14
Vinyl Acetate	189k8Xk3	0	µgJv ³	/ 9	/ 9	/ X	/ 6	/ X
Vinyl bromide	X64k+8k0	0	µgJv ³	/ 18	/ 18	/ +	/ 11	/ +
Ethanol	+3k17kX	8d6	µgJv ³	**10**	/ 3	**13**	**49**	**35**
Acetonitrile	7Xk8Xk9	8d9	µgJv ³	/ 3	/ 3	/ 0	/ 3	/ 0
Acrolein	187k80k9	1	µgJv ³	/ X	/ X	/ 4	/ X	/ 4
Acrylonitrile	187k14k1	1	µgJv ³	/ X	/ X	/ 4	/ X	/ 4
tert-Butyl alcohol	7Xk+Xk8	0	µgJv ³	/ 7	/ 7	/ 3	/ 7	/ 3
2-Chloro-1.3-butadiene	kkkk	0	µgJv ³	/ 9	/ 9	/ X	/ 6	/ X
Di-isopropyl Ether	kkkk	0	µgJv ³	/ 18	/ 18	/ +	/ 18	/ X
Ethyl tert-Butyl Ether (ETBE)	+47k60k4	0	µgJv ³	/ 18	/ 18	/ +	/ 18	/ X
tert-Amyl Methyl Ether (TAME)	663k8Xk9	0	µgJv ³	/ 18	/ 18	/ +	/ 18	/ X
Methyl Methacrylate	98k+0k+	0	µgJv ³	/ 18	/ 18	/ +	/ 18	/ X
1.1.1.2-Tetrachloroethane	+48k08k+	4	µgJv ³	/ 1X	/ 1X	/ 6	/ 17	/ 6
Isopropylbenzene	69k90k9	0	µgJv ³	/ 11	/ 11	/ 7	/ 10	/ +
n-Propylbenzene	184k+Xk1	0	µgJv ³	/ 11	/ 11	/ 7	/ 10	/ +
tert-Butylbenzene	69k8+k+	4	µgJv ³	/ 10	/ 10	/ 9	/ 14	/ 7
sec-Butylbenzene	14Xk69k9	4	µgJv ³	/ 10	/ 10	/ 9	/ 14	/ 7
2-isopropyltoluene	kkkk	4	µgJv ³	/ 10	/ 10	/ 9	/ 14	/ 7
n-Butylbenzene	183kX1k9	4	µgJv ³	/ 10	/ 10	/ 9	/ 14	/ 7
Naphthalene	61k08k4	4	µgJv ³	/ 10	/ 10	/ 7	/ 14	**12**
USEPA Air Toxics Method TO15r Surrogates								
4-Bromofluorobenzene	3+8k88k3	8d1	%	**82.6**	**81.7**	**91.6**	**80.2**	**81.7**

Analytical Results

M, Lkc arb@: **AIR**

Compound	CAS Number	LOR	Unit	Client sample ID: 4981 ARTS & CRAFTS STUDIO	kkkk	kkkk	kkkk	kkkk
			Client sampling date / time	06k=SNk0810 14:88	kkkk	kkkk	kkkk	kkkk
				EN1200432-016	----	----	----	----
USEPA Air Toxics Method TO15r								
Freon 12	7Xk71k9	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Chloromethane	73k97k4	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Freon 114	7+k13k0	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Vinyl chloride	7Xk81k3	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Bromomethane	73k94k6	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Chloroethane	7Xk88k4	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Freon 11	7Xk+6k3	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
1.1-Dichloroethene	7Xk4Xk3	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Dichloromethane	7Xk86k0	8dX	hhLn	**2.8**	kkkk	kkkk	kkkk	kkkk
Freon 113	7+k14k1	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
1.1-Dichloroethane	7Xk43k4	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
cis-1.2-Dichloroethene	1X+kX6k0	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Chloroform	+7k++k4	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
1.2-Dichloroethane	187k8+k0	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
1.1.1-Trichloroethane	71kXXk+	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Benzene	71k34k0	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Carbon Tetrachloride	X+k04kX	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
1.2-Dichloropropane	79k97kX	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Trichloroethene	76k81k+	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
cis-1.3-Dichloropropylene	188+1k81kX	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
trans-1.3-Dichloropropene	188+1k80k+	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
1.1.2-Trichloroethane	76k88kX	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Toluene	189k99k4	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
1.2-Dibromoethane (EDB)	18+k64k3	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Tetrachloroethene	107k19k3	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Chlorobenzene	189k68k7	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Ethylbenzene	188k31k3	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
meta- & para-Xylene	189k49k4 18+k30k4	1dB	hhLn	/ XdD	kkkk	kkkk	kkkk	kkkk
Styrene	188k30kX	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
1.1.2.2-Tetrachloroethane	76k43kX	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
ortho-Xylene	6Xk37k+	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
4-Ethyltoluene	kkkk	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
1.3.5-Trimethylbenzene	189k+7k9	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
1.2.4-Trimethylbenzene	6Xk+4k+	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
1.3-Dichlorobenzene	X31k74k1	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk

Analytical Results

M, Lkc arb@: AIR	Client sample ID	4981 ARTS & CRAFTS STUDIO	kkkk	kkkk	kkkk	kkkk
	Client sampling date / time	06k=SNk0810 14:88	kkkk	kkkk	kkkk	kkkk
Compound / CAS Number / LOR / Unit		EN1200432-016	----	----	----	----
USEPA Air Toxics Method TO15r - Continued						
Benzylchloride 188k33k7	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
1.4-Dichlorobenzene 18+k3+k7	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
1.2-Dichlorobenzene 6XkX8k1	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
1.2.4-Trichlorobenzene 108k90k1	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Hexachlorobutadiene 97k+9k4	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Acetone +7k+3k1	8dX hhLn	/ 18d8	kkkk	kkkk	kkkk	kkkk
Bromodichloromethane 7Xk07k3	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
1.3-Butadiene 18+k66k8	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Carbon disulfide 7Xk1Xk8	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
2-Chlorotoluene 6Xk36k9	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
1-Chloro-2-propene (Allyl chloride) 187k8Xk1	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Cyclohexane 118k90k7	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Dibromochloromethane 103k39k1	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
1.4-Dioxane 104k61k1	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Ethylacetate 6880k96kX	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
trans-1.2-Dichloroethene 1X+k+8kX	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Heptane 130k90kX	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Hexane kkkk	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Isooctane kkkk	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Isopropyl Alcohol +7k+4k8	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
2-Butanone (MEK) 79k64k4	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Methyl iso-Butyl ketone 189k18k1	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
2-Hexanone (MBK) X61k79k+	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Propene 11Xk87k1	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Methyl tert-Butyl Ether (MTBE) 1+43k83k3	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Tetrahydrofuran 186k66k6	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Bromoform 7Xk0Xk0	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Vinyl Acetate 189k8Xk3	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Vinyl bromide X64k+8k0	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Ethanol +3k17kX	8dX hhLn	**3.2**	kkkk	kkkk	kkkk	kkkk
Acetonitrile 7Xk8Xk9	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Acrolein 187k80k9	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Acrylonitrile 187k14k1	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
tert-Butyl alcohol 7Xk+Xk8	8dX hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk

Analytical Results

M, Lkc arb@: AIR			Client sample ID	4981 ARTS & CRAFTS STUDIO	kkkk	kkkk	kkkk	kkkk
			Client sampling date / time	06k=SNk0810 14:88	kkkk	kkkk	kkkk	kkkk
Compound	CAS Number	LOR	Unit	EN1200432-016	----	----	----	----
USEPA Air Toxics Method TO15r - Continued								
2-Chloro-1.3-butadiene	kkkk	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Di-isopropyl Ether	kkkk	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Ethyl tert-Butyl Ether (ETBE)	+47k60k4	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
tert-Amyl Methyl Ether (TAME)	663k8Xk9	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Methyl Methacrylate	98k+0k+	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
1.1.1.2-Tetrachloroethane	+48k08k+	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Isopropylbenzene	69k90k9	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
n-Propylbenzene	184k+Xk1	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
tert-Butylbenzene	69k8+k+	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
sec-Butylbenzene	14Xk69k9	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
2-isopropyltoluene	kkkk	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
n-Butylbenzene	183kX1k9	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
Naphthalene	61k08k4	8dX	hhLn	/ 0d+	kkkk	kkkk	kkkk	kkkk
USEPA Air Toxics Method TO15r (Mass/Volume)								
Freon 12	7Xk71k9	0	µgJv ³	/ 14	kkkk	kkkk	kkkk	kkkk
Chloromethane	73k97k4	1	µgJv ³	/ X	kkkk	kkkk	kkkk	kkkk
Freon 114	7+k13k0	3	µgJv ³	/ 19	kkkk	kkkk	kkkk	kkkk
Vinyl chloride	7Xk81k3	1	µgJv ³	/ 7	kkkk	kkkk	kkkk	kkkk
Bromomethane	73k94k6	0	µgJv ³	/ 18	kkkk	kkkk	kkkk	kkkk
Chloroethane	7Xk88k4	1	µgJv ³	/ 7	kkkk	kkkk	kkkk	kkkk
Freon 11	7Xk+6k3	4	µgJv ³	/ 13	kkkk	kkkk	kkkk	kkkk
1.1-Dichloroethene	7Xk4Xk3	0	µgJv ³	/ 18	kkkk	kkkk	kkkk	kkkk
Dichloromethane	7Xk86k0	0	µgJv ³	**10**	kkkk	kkkk	kkkk	kkkk
Freon 113	7+k14k1	3	µgJv ³	/ 08	kkkk	kkkk	kkkk	kkkk
1.1-Dichloroethane	7Xk43k4	0	µgJv ³	/ 18	kkkk	kkkk	kkkk	kkkk
cis-1.2-Dichloroethene	1X+kX6k0	0	µgJv ³	/ 18	kkkk	kkkk	kkkk	kkkk
Chloroform	+7k++k4	0	µgJv ³	/ 10	kkkk	kkkk	kkkk	kkkk
1.2-Dichloroethane	187k8+k0	0	µgJv ³	/ 18	kkkk	kkkk	kkkk	kkkk
1.1.1-Trichloroethane	71kXXk+	4	µgJv ³	/ 13	kkkk	kkkk	kkkk	kkkk
Benzene	71k34k0	0	µgJv ³	/ 9	kkkk	kkkk	kkkk	kkkk
Carbon Tetrachloride	X+k04kX	4	µgJv ³	/ 1+	kkkk	kkkk	kkkk	kkkk
1.2-Dichloropropane	79k97kX	0	µgJv ³	/ 10	kkkk	kkkk	kkkk	kkkk
Trichloroethene	76k81k+	4	µgJv ³	/ 13	kkkk	kkkk	kkkk	kkkk
cis-1.3-Dichloropropylene	188+1k81kX	0	µgJv ³	/ 10	kkkk	kkkk	kkkk	kkkk

Analytical Results

M, Lkc arb@: AIR	Client sample ID	4981 ARTS & CRAFTS STUDIO	kkkk	kkkk	kkkk	kkkk
	Client sampling date / time	06k=SNk0810 14:88	kkkk	kkkk	kkkk	kkkk

Compound	CAS Number	LOR	Unit	EN1200432-016	----	----	----	----
USEPA Air Toxics Method TO15r (Mass/Volume) - Continued								
trans-1.3-Dichloropropene	188+1k80k+	0	µgJv ³	/ 10	kkkk	kkkk	kkkk	kkkk
1.1.2-Trichloroethane	76k88kX	4	µgJv ³	/ 13	kkkk	kkkk	kkkk	kkkk
Toluene	189k99k4	0	µgJv ³	/ 18	kkkk	kkkk	kkkk	kkkk
1.2-Dibromoethane (EDB)	18+k64k3	3	µgJv ³	/ 08	kkkk	kkkk	kkkk	kkkk
Tetrachloroethene	107k19k3	4	µgJv ³	/ 19	kkkk	kkkk	kkkk	kkkk
Chlorobenzene	189k68k7	0	µgJv ³	/ 10	kkkk	kkkk	kkkk	kkkk
Ethylbenzene	188k31k3	0	µgJv ³	/ 11	kkkk	kkkk	kkkk	kkkk
meta- & para-Xylene	189k49k4 18+k30k4	3	µgJv ³	/ 00	kkkk	kkkk	kkkk	kkkk
Styrene	188k30kX	0	µgJv ³	/ 11	kkkk	kkkk	kkkk	kkkk
1.1.2.2-Tetrachloroethane	76k43kX	4	µgJv ³	/ 19	kkkk	kkkk	kkkk	kkkk
ortho-Xylene	6Xk37k+	0	µgJv ³	/ 11	kkkk	kkkk	kkkk	kkkk
4-Ethyltoluene	kkkk	0	µgJv ³	/ 14	kkkk	kkkk	kkkk	kkkk
Total Xylenes	1448k08k7	+	µgJv ³	/ 09	kkkk	kkkk	kkkk	kkkk
1.3.5-Trimethylbenzene	189k+7k9	0	µgJv ³	/ 14	kkkk	kkkk	kkkk	kkkk
1.2.4-Trimethylbenzene	6Xk+4k+	0	µgJv ³	/ 14	kkkk	kkkk	kkkk	kkkk
1.3-Dichlorobenzene	X31k74k1	4	µgJv ³	/ 1+	kkkk	kkkk	kkkk	kkkk
Benzylchloride	188k33k7	4	µgJv ³	/ 14	kkkk	kkkk	kkkk	kkkk
1.4-Dichlorobenzene	18+k3+k7	4	µgJv ³	/ 1+	kkkk	kkkk	kkkk	kkkk
1.2-Dichlorobenzene	6XkX8k1	4	µgJv ³	/ 1+	kkkk	kkkk	kkkk	kkkk
1.2.4-Trichlorobenzene	108k90k1	3	µgJv ³	/ 16	kkkk	kkkk	kkkk	kkkk
Hexachlorobutadiene	97k+9k4	X	µgJv ³	/ 09	kkkk	kkkk	kkkk	kkkk
Acetone	+7k+3k1	1	µgJv ³	/ +	kkkk	kkkk	kkkk	kkkk
Bromodichloromethane	7Xk07k3	4	µgJv ³	/ 19	kkkk	kkkk	kkkk	kkkk
1.3-Butadiene	18+k66k8	1	µgJv ³	/ +	kkkk	kkkk	kkkk	kkkk
Carbon disulfide	7Xk1Xk8	0	µgJv ³	/ 9	kkkk	kkkk	kkkk	kkkk
2-Chlorotoluene	6Xk36k9	4	µgJv ³	/ 14	kkkk	kkkk	kkkk	kkkk
1-Chloro-2-propene (Allyl chloride)	187k8Xk1	0	µgJv ³	/ 9	kkkk	kkkk	kkkk	kkkk
Cyclohexane	118k90k7	0	µgJv ³	/ 6	kkkk	kkkk	kkkk	kkkk
Dibromochloromethane	103k39k1	3	µgJv ³	/ 00	kkkk	kkkk	kkkk	kkkk
1.4-Dioxane	104k61k1	0	µgJv ³	/ 6	kkkk	kkkk	kkkk	kkkk
Ethylacetate	6880k96kX	0	µgJv ³	/ 6	kkkk	kkkk	kkkk	kkkk
trans-1.2-Dichloroethene	1X+k+8kX	0	µgJv ³	/ 18	kkkk	kkkk	kkkk	kkkk
Heptane	130k90kX	0	µgJv ³	/ 18	kkkk	kkkk	kkkk	kkkk
Hexane	kkkk	0	µgJv ³	/ 6	kkkk	kkkk	kkkk	kkkk

Analytical Results

M, Lkc arb@: AIR			Client sample ID	4981 ARTS & CRAFTS STUDIO	kkkk	kkkk	kkkk	kkkk
			Client sampling date / time	06k=SNk0810 14:88	kkkk	kkkk	kkkk	kkkk
Compound	CAS Number	LOR	Unit	EN1200432-016	----	----	----	----
USEPA Air Toxics Method TO15r (Mass/Volume) - Continued								
Isooctane	kkkk	0	µgJv ³	/ 10	kkkk	kkkk	kkkk	kkkk
Isopropyl Alcohol	+7k+4k8	1	µgJv ³	/ +	kkkk	kkkk	kkkk	kkkk
2-Butanone (MEK)	79k64k4	0	µgJv ³	/ 9	kkkk	kkkk	kkkk	kkkk
Methyl iso-Butyl ketone	189k18k1	0	µgJv ³	/ 18	kkkk	kkkk	kkkk	kkkk
2-Hexanone (MBK)	X61k79k+	0	µgJv ³	/ 18	kkkk	kkkk	kkkk	kkkk
Propene	11Xk87k1	8d6	µgJv ³	/ X	kkkk	kkkk	kkkk	kkkk
Methyl tert-Butyl Ether (MTBE)	1+43k83k3	0	µgJv ³	/ 6	kkkk	kkkk	kkkk	kkkk
Tetrahydrofuran	186k66k6	0	µgJv ³	/ 9	kkkk	kkkk	kkkk	kkkk
Bromoform	7Xk0Xk0	X	µgJv ³	/ 07	kkkk	kkkk	kkkk	kkkk
Vinyl Acetate	189k8Xk3	0	µgJv ³	/ 6	kkkk	kkkk	kkkk	kkkk
Vinyl bromide	X64k+8k0	0	µgJv ³	/ 11	kkkk	kkkk	kkkk	kkkk
Ethanol	+3k17kX	8d6	µgJv ³	**6**	kkkk	kkkk	kkkk	kkkk
Acetonitrile	7Xk8Xk9	8d9	µgJv ³	/ 3	kkkk	kkkk	kkkk	kkkk
Acrolein	187k80k9	1	µgJv ³	/ +	kkkk	kkkk	kkkk	kkkk
Acrylonitrile	187k14k1	1	µgJv ³	/ +	kkkk	kkkk	kkkk	kkkk
tert-Butyl alcohol	7Xk+Xk8	0	µgJv ³	/ 9	kkkk	kkkk	kkkk	kkkk
2-Chloro-1.3-butadiene	kkkk	0	µgJv ³	/ 6	kkkk	kkkk	kkkk	kkkk
Di-isopropyl Ether	kkkk	0	µgJv ³	/ 11	kkkk	kkkk	kkkk	kkkk
Ethyl tert-Butyl Ether (ETBE)	+47k60k4	0	µgJv ³	/ 11	kkkk	kkkk	kkkk	kkkk
tert-Amyl Methyl Ether (TAME)	663k8Xk9	0	µgJv ³	/ 11	kkkk	kkkk	kkkk	kkkk
Methyl Methacrylate	98k+0k+	0	µgJv ³	/ 11	kkkk	kkkk	kkkk	kkkk
1.1.1.2-Tetrachloroethane	+48k08k+	4	µgJv ³	/ 19	kkkk	kkkk	kkkk	kkkk
Isopropylbenzene	69k90k9	0	µgJv ³	/ 14	kkkk	kkkk	kkkk	kkkk
n-Propylbenzene	184k+Xk1	0	µgJv ³	/ 14	kkkk	kkkk	kkkk	kkkk
tert-Butylbenzene	69k8+k+	4	µgJv ³	/ 13	kkkk	kkkk	kkkk	kkkk
sec-Butylbenzene	14Xk69k9	4	µgJv ³	/ 13	kkkk	kkkk	kkkk	kkkk
2-isopropyltoluene	kkkk	4	µgJv ³	/ 13	kkkk	kkkk	kkkk	kkkk
n-Butylbenzene	183kX1k9	4	µgJv ³	/ 13	kkkk	kkkk	kkkk	kkkk
Naphthalene	61k08k4	4	µgJv ³	/ 14	kkkk	kkkk	kkkk	kkkk
USEPA Air Toxics Method TO15r Surrogates								
4-Bromofluorobenzene	3+8k88k3	8d1	%	**80.0**	kkkk	kkkk	kkkk	kkkk

Surrogate Control Limits

M, Lkc arb@: AIR		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
USEPA Air Toxics Method TO15r Surrogates			
4-Bromofluorobenzene	3+8k88K3	+8	138

APPENDIX C QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

TABLE OF CONTENTS

1 INTRODUCTION AND BACKGROUND

1.1 Introduction

The aim of quality assurance and quality control (QA/QC) is to deliver data that is:

- representative of what is sampled;
- precise;
- accurate; and
- reproducible.

As investigations involve both field and laboratory QA/QC, these are similarly divided. The objective of this document is to evaluate and identify the data quality objectives (DQOs) and the data quality indicators (DQIs), which are used to assess whether the DQOs have been met.

All surface water, groundwater and soil sampling procedures to be followed are described in full in our *Soil, gas and groundwater sampling manual (*Environmental Earth Sciences Ltd 2011). This document should be referred to for field procedures for sampling and conveyance. Copies can potentially be provided for review on a case by case basis.

The sampling methodology selected for the soil vapour sampling was USEPA Method TO-15, which involves sampling of ambient air over a defined period of time. Vapour samples were collected via SUMMA® canisters, which are a stainless steel vacuum vessel. The canister interior is electro-polished and chemically deactivated, creating a chemically inert surface. Canisters are completely evacuated into a vacuum prior to use, allowing the negative pressure to draw air in. Canisters are evacuated by the laboratory to a vacuum pressure of approximately 30 inches Hg, however, the canister loses vacuum during storage therefore is less than 30 inches Hg in the field. Flow controllers, calibrated in the laboratory, were sent with the canisters to allow the canisters to collect the samples over a set time period

The guideline documents used in the evaluation of the data set for this investigation are:

- Australian and New Zealand Environment and Conservation Council 1992, *Australian and New Zealand Guidelines for the assessment and management of contaminated sites,* Australia and New Zealand Environment Council, National Health and Medical Research Council, Melbourne, Vic;
- National Environment Protection Council (NEPC) 1999, *National environment protection (assessment of site contamination) measure*, National Environment Protection Council, Adelaide, SA;
- Standards Australia 1999, *Guide to the investigation and sampling of sites with potentially contaminated soil, Part 2: Volatile substances*, (AS 4482.2), Standards Australia, Homebush, NSW;
- NSW Government Department Environment Climate Change and Water (DECCW), 2010, *Vapour intrusion: Technical practice note*;

- Oregon Department of Environmental Quality (DEQ), 2010, *Guidance for assessing and remediating vapour intrusion in buildings*, State of Oregon Department of Environmental Quality;
- National Environment Protection Council (NEPC), 2010, *Draft National Environment Protection (Assessment of Site Contamination) Measure (NEPM)*;
- ITRC (Interstate Technology and Regulatory Council), 2007, *Vapour Intrusion Pathway: A Practical Guideline*. (VI-1). Washington, D.C.: Interstate Technology and Regulatory Council, Vapour Intrusion Team. www.itrcweb.org;
- ITRC (Interstate Technology and Regulatory Council), 2007, *Vapour Intrusion Pathway: Investigative Approaches for Typical Scenarios*. (VI-1A). Washington, D.C.: Interstate Technology and Regulatory Council, Vapour Intrusion Team. www.itrcweb.org;
- DTSC (Department of Toxic Substances Control), 2011, *Guidance for the evaluation and mitigation of subsurface vapour intrusion to indoor air (Final Guidance)*. California Environmental Protection Agency; and
- Victorian Government Gazette, 2001, State Environment Protection Policy (SEPP) *Air Quality Management*. No. S240, Gazette 21/12/2001.

Data quality is typically discussed in terms of precision, accuracy, representativeness, comparability and completeness. These are referred to as the PARCC parameters. The PARCC (and additional QA) parameters are discussed within this report.

The following items form part of the QA/QC appendix:

- repeatability;
- precision;
- accuracy;
- representativeness;
- completeness;
- comparability;
- sensitivity;
- holding times;
- blanks; and
- procedures for anomalous samples and confirmation checking.

1.2 Background

The terms “quality assurance” and “quality control” are often confused. In any program, quality control is required before assurance can be put in place. With respect to laboratory analysis activities, these terms are defined as follows:

Quality Assurance (QA) is “a set of activities intended to establish confidence that quality requirements will be met” (AS/NZS ISO 9000:2005).

This encompasses all actions, procedures, checks and decisions undertaken to ensure the accuracy and reliability of analysis results. It includes routine procedures which ensure

proper sample control, data transfer, instrument calibration, the decisions required to select and properly train staff, select equipment and analytical methods, and the day to day judgements resulting from regular scrutiny and maintenance of the laboratory system. Quality Control (QC) is "a set of activities intended to ensure that quality requirements are actually being met" (AS/NZS ISO 9000:2005). In other words, the operational techniques and activities that are used to fulfil the requirements for quality.

These are the components of QA which serve to monitor and measure the effectiveness of other QA procedures by comparison with previously decided objectives. They include measurement of the quality of reagents, cleanliness of apparatus, accuracy and precision of methods and instrumentation, and reliability of all of these factors as implemented in a given laboratory from day to day.
A complete discussion of either of these terms or the steps for implementing them is beyond the scope of this document. It is widely recognised, however, that adoption of sound laboratory QA and QC procedures is essential and readers are referred to documentation available from the National Association of Testing Authorities (NATA), if further information is required.

2 DATA QUALITY OBJECTIVES

Development of data quality objectives (DQOs) for each project is a requirement of the *National environment protection (assessment of site contamination) measure* (NEPC 1999). This is based on a DQO process formulated by the USEPA for contaminated land assessment and remediation. This has not been formally adopted by the EPA Victoria or the contaminated land industry, however, it provides sound guidance for a consistent approach in understanding site assessment and remediation. Many environmental practitioners are now following this process.

The DQO process is defined by seven steps. Each of these steps has been given due consideration in the undertaking of this project. In brief, these steps are:

Step 1: State the problem and establish the DQO team.

Step 2: Determine the possible and probable actions that will resolve the problems.

Step 3: Identify the informational inputs to assist in the problem resolution.

Step 4: Define the boundaries of the study (geographical, temporal, etc).

Step 5: Develop and define decision rules.

Step 6: Specify tolerable limits to reduce probability of incorrect decisions.

Step 7: Ensure the quality of the information obtained.

Step 1 — State the Problem
The problem is that a potential exists for the intrusion of volatile compounds in ambient air within buildings from on-site contaminated soil and groundwater.

The problem will be addressed directly by scientists from Environmental Earth Sciences VIC. A review of the works completed and decisions made by Environmental Earth Sciences VIC will be conducted by the Environmental Auditor.

Step 2 — Identify the Decision
These works have been commissioned to provide a direct assessment of the potential health risks to occupants (i.e. sensitive receptors). The results will conclude if additional investigation, a management system and/or if remedial works are required with respect to investigating and/or controlling vapour intrusion.

Step 3 — Identify the Inputs to the Decision
The study inputs include review of existing soil and groundwater data from previous investigations, an inspection on-site buildings and proposed sample locations, indoor air monitoring, and reference to published applicable ambient air/vapour guidelines.

Step 4 — Define the Study Boundaries
The physical boundary of the study area is defined in Figure 1. The proposed indoor air monitoring locations are confined to on-site buildings (as detailed in Section 3 below).

Step 5 — Develop and Define Decision Rules
Under the DQO process, it is important to nominate action levels for decision making. Initially, all analytical data will be compiled and evaluated against the appropriate criteria.

The World Health Organisation (WHO) publishes air quality guidelines, which are relevant sources for vapour guideline data. Along with the Victorian State Environment Protection Policy (SEPP) *Air Quality Management* and SEPP *Ambient Air Quality*, NEPC *Ambient Air Toxics Measure* and CRC CARE Technical Report no. 10, these are considered the best source of guideline data for this vapour intrusion assessment. Where the WHO, Victorian or national publications do not provide guidelines, a variety of international sources will be used such as US EPA Integrated Risk Information System (IRIS), Agency for Toxic Substances and Disease Registry (ATSDR) and Canadian Ministry of Environment may be used.

Step 6 — Specify Tolerable Limits on Decision Errors
The acceptable limits on decision errors have been adopted from Table 1 of the ASTM Standard D5314-92 (2006) *Standard Guide for Soil Gas Monitoring in the Vadose Zone*. Acceptable limits for field data analysis (relative percent differences for primary and duplicate results) are between 20 and 110 percent (depending on the origin of the sample and volatility of the chemicals present). These are summarised in Table 1 as the measurement data quality indicators (MDQIs), which will be used to establish whether the DQOs have been met.

TABLE 1 DATA PROFIT MDQIS

Parameter	Procedure	Minimum Frequency	MDQI
Precision (Repeatability	Field Duplicates	1 each sampling round	<20 RPD
	Lab Replicate*	1 in 20	<20 RPD
Accuracy*	Reference Material	1 in 10	90% to 110% R
	Matrix spikes	1 in 10	90% to 110% R
	Surrogate spikes	1 in 10	90% to 110% R
Representativeness*	Reagent Blanks	1 per batch	No detection
	Holding Times*	Every sample	No breach of holding times
Blanks	Trip Blank	0	No detection
	Rinsate Blanks	0	No detection

Note(s):
1. RPD – relative percentage difference;
2. PR – percent recovery (%R); and
3. * the MDQI is usually specified in the standard method. If not, use the default values set out in this table.

Step 7 — Ensure the quality of the information obtained
QC will be achieved by using NATA accredited laboratories, using standard methods supported by internal duplicates, the checking of high, abnormal or otherwise anomalous results against background and other chemical results for the sample concerned.

QA will be achieved by confirming field or anticipated results based upon the comparison of field observations with laboratory results. In addition, the laboratories undertake additional duplicate analysis as part of their internal QA program on the basis of one duplicate for every 20 analysed. A summary of the field and laboratory QA is referred to in Table 1.

It should be noted that Standards Australia (AS4482.1) specify that typical MDQIs for precision should be ≤50% RPD and also acknowledge that low concentrations and organic compounds in particular can be acceptably outside this range. The standard suggests that ≤50% RPD be used as a 'trigger' and values above this level of repeatability need to be noted and explained. However, a ≤20% relative percentage difference (RPD) trigger value will be used BASED ON astm Standards (2006), with any exceedances being discussed and assessed for acceptability.

3 SAMPLING AND ANALYSIS PLAN

A sampling and analysis plan was developed to assess the identified exposure pathways and receptors. All sampling locations, methods and laboratory analysis were approved by the Environmental Auditor, Peter Nadebaum (GHD Pty Ltd), prior to the commencement of field works through the following documents:

- Environmental Earth Sciences, 2010. Report number 210074 - *'Sampling and analysis plan for the former South Melbourne Gasworks, Albert Park, Victoria'*;
- GHD 31/26548/189319Letter '*Gasworks Site Environmental Audit Sampling and Analysis Plan*', dated 10 November 2010;
- SAP discussion between Environmental Earth Sciences, City of Port Phillip (CoPP) and GHD on 2 December 2010
- Environmental Earth Sciences, Letter 210074L2 - '*Revised vapour intrusion investigation sampling and analysis plan for the South Melbourne Gasworks, Albert Park, Victoria*' dated 4 January 2011;
- GHD 31/26548/191401Letter '*Gasworks Site Environmental Audit Sampling and Analysis Plan*', dated 12 January 2011;
- Environmental Earth Sciences, Letter 210074L5 – '*Response to auditor's comments regarding the revised vapour SAP for the former South Melbourne Gasworks, Albert Park, Victoria'* dated 28 January 2011;
- site walkover and designation of sampling locations with the Environmental Auditor, Peter Nadebaum on 6 June 2011; and
- correspondence (*via-email*) with the Audit team between 12-15 July 2011.

3.1 Sample location selection

The rationale behind the selection of sampling locations is based on identified exposure pathways and receptors, minimising potential cross contaminating indoor sources and direction from the Auditor. Site inspections were undertaken to assess building design and identify potential cross contaminating sources located within buildings. Based on the site inspection, sampling locations were finalised to account for:

- building design;
- ventilation;
- access; and
- potential indoor cross contaminating sources.

Inspection checklists, adopted from Appendix E of Oregon DEQ, (2010) *Guidance for assessing and remediating vapour intrusion in buildings,* are located in Appendix A of the report.

All efforts were made to remove or distance potential contamination sources from sampling locations and minimise ventilation of buildings. At the direction of the Auditor samples were included in locations deemed to have potential cross contaminating indoor sources. The following potential sampling locations, however, were discarded after the site inspection as they were determined as not being amenable to sampling due to potential indoor contaminating sources or access issues:

- substation (low exposure risk and physical access constraints); and
- darkroom studio (painted immediately prior to sampling Round 1).

The proposed substation sample was reallocated to the theatre dressing room, and the darkroom studio sample was reallocated to the theatre stage and performance area. This

location was selected as performers may spend some time in there for rehearsals and performances.

The following locations were also excluded from the investigation due to a low-risk of exposure from short occupancy duration:

- ticket sales office and bar area has low exposure risk of 2 -3 hours on performance nights only;
- Angela Roberts – Bird gallery has low exposure risk as site users are only in the room for 30 minutes to one hour at a time; and
- theatre foyer/gallery is low exposure risk, as site users are not confined to this area for any extent of time.

To assess potential cross contamination from external ambient air, the SAP included a background sample located outside in the south eastern corner of the site. This location was selected as it is upwind to the site for the prevailing coastal winds which travel north from the coast across the site.

3.2 Sampling conditions and methodology

The sampling methodology selected was passive sampling of indoor ambient air over a period of time. This was chosen as indoor air sampling can provide a relatively direct assessment of the potential risks to occupants or receptors identified in Section 6 of the report which identifies complete exposure pathways.

Key limitation of this sampling methodology is the potential for other sources of the chemicals of potential concern (CoPC) to be located within the building or to occur as background sources. Measures to eliminate or monitor these potential effects have been included in this investigation including:

- sample location selection (as discussed in Section 8.2.1 of the report);
- collection of QC samples including a background sample and a field duplicate sample; and
- elimination of cross contamination between sampling events by decontaminating and cleaning sampling equipment by ALS.

3.3 Laboratory analysis

Laboratory analysis of 84 volatile compounds was undertaken by Australian Laboratory Services (ALS), who are NATA accredited for analysis of volatile organic contaminants (VOCs) in air (USEPA Air Toxics methods TO15r)]. Methods USEPA TO14 and/or TO15 are recommended in the National Environment Protection (Air Toxics) Measure for Benzene, Toluene & Xylenes for Ambient air, ALS methods comply with this NEPM.

4 QUALITY CONTROL AND QUALITY ASSURANCE

4.1 Measurement data quality objectives

Step 7 of the DQO process (Section 2.0) is a focus on the quality of the information by measurement, that is, measurement data quality objectives (MDQOs). The aim of QA/QC is to deliver data that is representative of what is sampled, precise, accurate and reproducible. As investigations involve both field and laboratory QA/QC, these are similarly divided. The objective of this section is to provide the MDQOs and the measurement data quality indicators (MDQIs), which will be used to establish whether the DQOs have been met.

All ambient air vapour sampling procedures need to be undertaken according to a standard procedure, for example those procedures set out in:

- National Environment Protection Council (NEPC) 1999, *National environment protection (assessment of site contamination) measure*, National Environment Protection Council, Adelaide, SA;
- National Environment Protection Council (NEPC), 2010, *Draft National Environment Protection (Assessment of Site Contamination) Measure (NEPM)*;
- Australian and New Zealand Environment and Conservation Council 1992, *Australian and New Zealand Guidelines for the assessment and management of contaminated sites,* Australia and New Zealand Environment Council, National Health and Medical Research Council, Melbourne, Vic;
- National Environment Protection Council (NEPC) 1999, *National environment protection (assessment of site contamination) measure*, National Environment Protection Council, Adelaide, SA;
- Standards Australia 1999, *Guide to the investigation and sampling of sites with potentially contaminated soil, Part 2: Volatile substances*, (AS 4482.2), Standards Australia, Homebush, NSW;
- NSW Government Department Environment Climate Change and Water (DECCW), 2010, *Vapour intrusion: Technical practice note*; and
- Victorian Government Gazette, 2001, State Environment Protection Policy (SEPP) *Air Quality Management*. No. S240, Gazette 21/12/2001.

Measurement data quality is typically discussed in terms of precision, accuracy, representativeness, comparability and completeness. Although not necessarily considered in list order, the following items should form part of the QA/QC data evaluation:

- Measured Parameters: precision, accuracy, repeatability (comparability), blanks; and
- Assessed Parameters: completeness, representative of site conditions, sensitivity, and holding times.

The laboratories used should be NATA accredited for the analytical methods performed. Containers, sample preservation (if necessary) and holding times should be consistent with industry practices as set out in NEPM and as defined by ASTM.

The QA parameters selected and the criteria used to evaluate the analytical data are defined below and presented in Table 1 of this report.

4.1.1 Repeatability (Field collected intra-laboratory duplicates)

These samples provide a check on the analytical performance of the laboratory. At least 5 percent of vapour samples (1 in 20) per round of sampling from a site are collected in duplicate. For comparability of data, it is important that there is little delay in the sample submission.

Any value >20% RPD will be noted and discussed, as per ASTM Standards (2006), with respect to its acceptability for inclusion in the data-set.

4.1.2 Precision

Precision is a measure of the reproducibility of results, and is assessed on the basis of agreement between a set of replicate results obtained from duplicate analyses. The precision of a duplicate determination can be measured as RPD, and is calculated from the following equation:

$$RPD = \left[\frac{X1 - X2}{\left(\frac{X1 + X2}{2} \right)} \right] \times 100$$

where: X1 is the first duplicate value

X2 is the second duplicate value

The field blind duplicate results and calculated RPDs are presented in Table 2. All results are considered to be within the acceptable range of below 20% as required by ASTM Standards (2006).

4.1.3 Accuracy

Accuracy is a measure of the agreement between an experimental determination and the true value of the parameter being measured. The determination of accuracy can be achieved through the analysis of known reference materials or assessed by the analysis of matrix spikes. Accuracy is measured in terms of percentage recovery as defined by the following equation:

$$\%R = \frac{SSR - SR}{SA} \times 100$$

where: %R = percentage recovery of the spike

SSR = spiked sample result

SR = sample result (native)

SA = spike added

Laboratories calculate percentage recoveries of spiked compounds, which are evaluated against control or acceptance limits taken from the appropriate method or the Contract

Laboratory Program Statement of Work. If the spike recovery for a sample does not fall within the prescribed control limits, laboratory based corrective action is required.

Surrogate spikes consist of spiking non-target compounds into the sample prior to analysis. The spiked compounds are expected to behave during analysis in the same way as the target compounds. Every sample is spiked prior to extraction or analysis with surrogate compounds that are representative of the analysis. If surrogate spike recovery does not meet the prescribed control limits, samples should be reanalysed.

4.1.4 Representativeness

Data Point Evaluation
Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition.

Representativeness is primarily dependent on the design and implementation of the sampling program. Representativeness of the data is partially ensured by the avoidance of contamination, adherence to sample handling and analysis protocols, and use of proper chain-of-custody and documentation procedures. Blanks, holding times and field duplicates are all QA parameters that can assist in the analysis of representativeness for data point evaluation and will need to be analysed as part of the measurement data quality assessment.

Data Set Evaluation
Whether the data is representative of the site is checked in part by undertaking an evaluation of the whole data set to establish the data is compatible. Data compatibility is authenticated by confirming that the laws of chemistry are upheld, that intra-laboratory analysis relationships are consistent (i.e. BTEX is a subset of the TPH C_6-C_9 fraction), that observations and field measurements are in agreement with other field data and the laboratory data and that results are consistent with the geology, history and logic.

4.1.5 Completeness

The following information is required to check for completeness of data sets:

- chain-of-custody forms (completed by Environmental Earth Sciences and the laboratory);
- sample receipt forms;
- all requested sample results reported;
- all blank data reported;
- all laboratory duplicates reported and RPDs calculated;
- all surrogate spike data reported;
- all matrix spike data reported; and
- NATA stamp on reports.

4.1.6 Comparability

Comparability is the evaluation of the similarity of conditions (e.g. sample depth, sample homogeneity, sampling procedures) under which separate sets of data are produced to ensure minimal common error. Data comparability should be demonstrated by the use of

standardised sampling and analysis procedures. Data comparability was maintained by undertaking the investigations as follows:

- sampling during the investigation was conducted by trained Environmental Earth Sciences field team using Environmental Earth Sciences' standard operating procedures;
- all vapour samples were collected using USEPA Method TO-15, which involves passive sampling of indoor ambient air via summa canisters over a period of time; and
- the same laboratory (ALS) were used for organic analysis for all relevant samples using the same NATA approved analytical methods.

4.1.7 Sensitivity

When interferences are present in the sample, a loss of sensitivity can occur resulting in an increase in the method detection limit. In some instances (e.g. where one or more compounds have particularly high concentrations) the sample must be diluted for analysis. This increases the method detection limit by the dilution factor.

The detection limits achieved by the laboratory, when adjusted for interferences from the presence of other chemicals within the sampled matrix, should generally be less than half the site criteria for all analytes tested (i.e. 2 x LOR <site criteria). This was not achieved for some benzene and naphthalene concentrations in vapour sampling Round 2.

4.1.8 Blanks

To meet the QC acceptance criteria, laboratory blanks should have no detectable concentrations of the target compounds. There were no field blank samples collected.

4.1.9 Holding times

Where standard holding times are exceeded, a discussion, using professional judgement, as to the integrity of the data will be required, taking into account such factors as field storage, laboratory storage and even sample bottle characteristics.

4.1.10 Procedures for anomalous samples and confirmation checking

All results should be checked for discrepancies by the project manager against the anticipated results and all other results within 8 hours of receipt of the results from the laboratory.

Any result that is considered by the supervising scientist to be unusually high or at variance with other results is automatically reanalysed. A significantly different result requires immediate remedial action on the whole sample batch (retesting or using an alternative analytical method) at the laboratory's expense.

After appropriate checking by laboratories, all sample analysis result work-sheets, including those of duplicates and replicate analyses, should be checked by the consultant. Once confirmation checking is completed the final laboratory report is issued.

For blind duplicates, if one sample has more than two analytes exceeding the data quality objectives, the sample is carefully checked. If the error is not apparent, the sample is rejected. If more than three samples are rejected all the samples collected at that time are rejected. These samples are then re-sampled and reanalysed.

4.2 Field QA/QC

4.2.1 Details of sampling team

Fieldwork was conducted over two sampling rounds using the following sampling teams:

- Site inspection: David James and Anne Whincup;
- Vapour sampling Round 1 (winter): Anne Whincup;
- Vapour sampling Round 2 (summer): Anne Whincup;

4.2.2 Sampling controls

Measures were undertaken to mitigate the key limitation of the selected sampling methodology by minimising the potential for cross contamination from indoor sources by:

- sample location selection (as discussed in Section 8.2.1 of the report);
- collection of QC samples including a background sample and a field duplicate sample;
- relocation of potential indoor cross contaminating sources away from sampling locations as far as practicable.

The canister vacuum reading before and after sampling was recorded to ensure that the canister was leak-free upon receipt and that the flow controller collected the sample over the specified period of time. All canisters recorded an initial vacuum reading of greater than 25 inches of mercury (if vacuum is less than 21 inches of mercury indicates improper handling during shipping). This information was recorded on chain of custody (COC) documentation.

Cross contamination between samples was prevented by utilising individual leak-free, clean and calibrated flow controllers and canisters provided by ALS. ALS have certified that the canister was leak-free and clean below the resolution limit for the VOCs of concern (refer to Attachment 1 for documentation).

The integrity of the sample was maintained through proper handling during shipping, checking of vacuum gauges, adherence to holding times, use of appropriate sampling equipment and documentation through COCs presented in Appendix B of the report.

Site observations and weather conditions during sampling are described in Section 9.0 of the report. Field duplicate samples were collected at a rate of one per sampling round. The duplicate analysis results are presented in Table 2.

TABLE 2 VAPOUR FIELD BLIND DUPLICATE QC DETECTABLE RESULTS

Sample	MDL	Round 1 (winter)		RPD%	MDL	Round 2 (summer)		RPD %
		4977 Sculpture Studio	4748 Duplicate			4775 Sculpture Studio	4777 Duplicate 1	
Sampling Date	-	17/07/2011	17/07/2011	-	-	29/01/2012	29/01/2012	-
Benzene	1.6	9.8	10.2	4.0	2.0	9.0	9.0	0.0
Toluene	1.9	86.0	90.9	5.5	2.0	204.0	227.0	10.7
Ethylbenzene	2.2	6.5	7.3	11.6	2.0	12.0	11.0	8.7
Styrene	2.1	<5.0	<5.5	-	2.0	28.0	34.0	19.4
Xylene	6.5	35.4	40.2	12.7	6.0	65.0	70.0	7.4
Trimethylbenzenes	5.0	<11.8	<13.0	-	4.0	<11.0	10.0	-
Acetone	1.2	<2.8	<3.1	-	1.0	98.0	100.0	2.0
Cyclohexane	1.7	14.6	18.0	20.9	2.0	21.0	23.0	9.1
Ethylacetate	1.8	<4.3	<4.7	-	2.0	17.0	24.0	34.1
Heptane	2.0	<4.7	<5.0	-	2.0	<9.0	8.0	-
Hexane	1.8	62.0	75.3	19.4	2.0	66.0	66.0	0.0
2-Butanone (MEK)	1.5	<3.6	<3.9	-	2.0	12.0	11.0	8.7
Propene	0.9	8.7	9.3	6.7	0.9	<4.0	<2.0	-
Ethanol	0.9	24.7	26.4	6.7	0.9	13.0	13.0	0

Notes:
1. MDL method detection limit
2. RPD relative percentage difference
3. - not analysed, or RPD not calculable
4. all units in $\mu g/m^3$
5. Initial acceptance Criteria 20%; those that exceed this criteria are shaded in grey.

There were two calculated RPDs that exceeded the initial 20% acceptance criteria as shaded in Table 2. These RPDs are slightly above the criteria and likely due to the low CoPC concentrations detected magnifying the RPDs. As only two contaminants were above the criteria it is concluded that it does not indicate the sampling and analytical methodology was compromised and that the integrity of the data has been maintained.

The scope of this project did not include analysis of trip and field blanks, rinsate samples or laboratory prepared trip spikes for the vapour sampling program. Environmental Earth Sciences VIC did not consider analysis of trip blanks, rinsate blanks or trip spikes necessary for the following reasons:

- A **trip blank** is used to document contamination attributable to shipping procedures for volatile components and would generally assume the form of an unused evacuated canister. For this project, sampling canister shipping was closely monitored, with collected samples immediately passed from the field scientist to the courier within 1.5 days of sample completion in Round 1 and within 3 days in Round 2, this was due to

delay in sampling the South Port Community Nursing. This process is documented within the chain of custody documentation. Given that vacuum loses were considered to be within acceptable limits (less than 3 inches of mercury from laboratory dispatch to laboratory receipt, with the exception of one sample which is thought to have been inaccurate gauge reading in the field), trip blanks were not considered necessary for this assessment and the absence thereof is not considered to adversely affect data quality.

- A **field blank** is used to document contamination attributable to field handling. The measurement of volatiles present within samples due to field handling procedure is a measurement of false positives. False positives are not considered to be a major concern due to the industrial nature of the site. Given that a background sample was collected during this assessment, this QA protocol is considered to have been satisfied.
- A **tracer sample** is a measure of potential cross contamination between samples due to contamination on sampling equipment. As there was no shared sampling equipment and samples were collected individually using dedicated samplers a tracer sample was not deemed necessary.

4.3 Laboratory QA/QC

Laboratory analysis for this project was completed Australian Laboratory Servicers (ALS) which are accredited by NATA for the methods used. Details of the samples sent to ALS and the analysis requested are contained in the chain of custody documentation held in Appendix B of the report. The analytical methods are noted on the laboratory transcripts. The collection date of samples, laboratory extraction date and allowable holding time are all present in the laboratory reports with all analysis being completed within the allowable holding times.

QC is achieved by utilising NATA accredited laboratories, using standard methods supported by internal duplicates, the checking of high, abnormal or otherwise anomalous results against background and other chemical results for the sample concerned.

QA was achieved by confirming field or anticipated results based upon the comparison of field observations with laboratory results. In addition, the laboratory undertook additional duplicate analysis as part of their internal QA program.

Laboratory duplicate results were generally within the acceptable range of reproducibility and all duplicates and standards were within the acceptable reproducibility range.

Laboratory assurance of quality data includes:

- ALS has certified that the canister was leak-free and clean below the resolution limit for the VOCs of concern (refer to Appendix C for documentation).
- ALS provided flow controllers that were clean and calibrated to collect a sample over the specified time frames;
- ALS undertook the required laboratory QC samples including mass spectral tuning, initial calibration, continuing calibration verification, laboratory control spike, and method blank;
- ALS checked the initial vacuum reading prior to issue of canisters; and final vacuum reading upon receipt of completed sample at the laboratory, with all readings recorded on the COC documentation

- ALS issued fully NATA endorsed Certificates of Analysis consistent with USEPA TO14 / TO15 method requirements;
- QA reporting is based on automated compliance checking against USEPA QC criteria; and
- adherence to holding time requirements with analysis of canister samples for VOCs completed within 30 days from collection.

Full laboratory transcripts and chain of custody forms are presented in Appendix B of the report, while the quality control (QC) report and interpretative quality control (QCI) report from ALS are presented in Attachment 3 and Attachment 4 of this appendix. These reports include details of surrogates and spikes used, percent recoveries of surrogates and spikes used, the instrument detection limits, the method detection limits, the practical quantification limits and the reference samples results.

4.4 QA / QC data evaluation

In summary, assurance of quality data from ambient vapour sampling has been based on development of an approved sampling and analysis plan and site management plan, appropriate field methodology, careful selection of laboratories and assessment of data against the Measurement Data Quality Indicators (MDQI's).

The QA / QC data reported by ALS for the documented vapour samples were determined to be of sufficient quality to be considered acceptable to comply with the Environmental Earth Sciences quality protocols for the project. This report has therefore concluded that the QA / QC data set and field duplicate results are free of systematic, method biases and field sampling errors, and the data is representative of the site conditions. It can be confidently stated that the MDQI's for this project have been met and the data set is considered to be reliable.

5 QAQC APPENDIX REFERENCES

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ATTACHMENT 1 SUMMA CANISTER CERTIFICATES

Canister Verification Report

Canister No: 4736

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	14-Jul-2011
		Valid To (At least):	04-Aug-2011
		Verification File:	110714_05.D
Canister Type:	Entech Silonite - Summa Style	**Stability Check:**	22-Jun-2009
Canister Size:	6L	**Next Check Due:**	22-Jun-2011
Valve Type:	Nupro/Swagelok	**Analyst**	Daniel.Junek

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
1,1,1-Trichloroethane	1,1,1-TCA / Methyl Chloroform	0.2	<0.2	SC
1,1,2,2-Tetrachloroethane		0.2	<0.2	SC
1,1,2-Trichloroethane		0.2	<0.2	SC
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2	SC
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2	SC
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2	SC
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2	SC
1,2-Dibromoethane	EDB / Ethylene Dibromide	0.2	<0.2	SC
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2	SC
1,2-Dichloropropane		0.2	<0.2	SC
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2	SC
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2	SC
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2	SC
Benzene	Cyclohexatriene	0.2	<0.2	SC
Bromomethane	Methyl bromide	0.2	<0.2	SC
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2	SC
Chlorobenzene	Phenyl Chloride	0.2	<0.2	SC
Chloroethane	Ethyl chloride	0.2	<0.2	SC
Chloroform	Trichloromethane	0.2	<0.2	SC
Chloromethane	Methyl chloride	0.2	<0.2	SC
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2	SC
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2	SC
Ethylbenzene		0.2	<0.2	SC
Freon 12	Dichlorodifluoromethane	0.2	<0.2	SC
Freon 11	Trichlorofluoromethane	0.2	<0.2	SC
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2	SC
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2	SC
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2	SC

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
Dichloromethane	Methylene chloride	0.2	<0.2	SC
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4	SC
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2	SC
Styrene	Vinyl benzene	0.2	<0.2	SC
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2	SC
Toluene	Methyl Benzene	0.2	<0.2	SC
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2	SC
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2	SC
Vinyl chloride	Chloroethene	0.2	<0.2	SC
1,2,4-Trichlorobenzene		0.2	<0.2	SC
1,3-Butadiene		0.2	<0.2	SC
1,4-Dioxane		0.2	<0.2	SC
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2	SC
4-Ethyltoluene		0.2	<0.2	SC
Acetone	2-Propanone	0.2	<0.2	SC
Allyl chloride	3-Chloropropene	0.2	<0.2	SC
Bromodichloromethane		0.2	<0.2	SC
Bromoform	Tribromomethane	0.2	<0.2	SC
Carbon disulfide		0.2	<0.2	SC
Cyclohexane		0.2	<0.2	SC
Dibromochloromethane		0.2	<0.2	SC
Ethyl acetate		0.2	<0.2	SC
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2	SC
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2	SC
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2	SC
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2	SC
Methyl tert-butyl ether	MTBE	0.2	<0.2	SC
n-Heptane		0.2	<0.2	SC
n-Hexane		0.2	<0.2	SC
Propene	Propylene	0.2	<0.2	SC
Tetrahydrofuran	THF	0.2	<0.2	SC
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2	SC
Vinyl acetate		0.2	<0.2	SC
Bromoethene	Vinyl bromide	0.2	<0.2	SC
Benzyl chloride	α-Chlorotoluene	0.2	<0.2	SC
Methanol		0.2	<0.2	SC
Ethanol		0.2	<0.2	SC
Acetonitrile		0.2	<0.2	SC
Acrolein	2-Propenal	0.2	<0.2	SC
Acrylonitrile	2-Propenenitrile	0.2	<0.2	SC
tert-Butyl alcohol	TBA	0.2	<0.2	SC
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2	SC
Diisopropyl Ether		0.2	<0.2	SC
Ethyl tert-butyl ether	ETBE	0.2	<0.2	SC
tert-Amyl methyl ether	TAME	0.2	<0.2	SC
Methyl methacrylate		0.2	<0.2	SC
1,1,1,2-Tetrachloroethane		0.2	<0.2	SC
Isopropylbenzene	Cumene	0.2	<0.2	SC
2-Chlorotoluene		0.2	<0.2	SC
n-Propylbenzene		0.2	<0.2	SC
tert-Butylbenzene		0.2	<0.2	SC
sec-Butylbenzene		0.2	<0.2	SC
2-Isopropyltoluene	o-Cymene	0.2	<0.2	SC
n-Butylbenzene		0.2	<0.2	SC
Naphthalene		0.2	<0.2	SC

SC = Supplier Certified

Canister Verification Report

Canister No: 4748

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	14-Jul-2011
		Valid To (At least):	04-Aug-2011
		Verification File:	110714_09.D
Canister Type:	Entech Silonite - Summa Style	**Stability Check:**	07-Aug-2009
Canister Size:	6L	**Next Check Due:**	07-Aug-2011
Valve Type:	Nupro/Swagelok	**Analyst**	Daniel.Junek

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
1,1,1-Trichloroethane	1,1,1-TCA / Methyl Chloroform	0.2	<0.2	SC
1,1,2,2-Tetrachloroethane		0.2	<0.2	SC
1,1,2-Trichloroethane		0.2	<0.2	SC
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2	SC
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2	SC
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2	SC
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2	SC
1,2-Dibromoethane	EDB / Ethylene Dibromide	0.2	<0.2	SC
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2	SC
1,2-Dichloropropane		0.2	<0.2	SC
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2	SC
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2	SC
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2	SC
Benzene	Cyclohexatriene	0.2	<0.2	SC
Bromomethane	Methyl bromide	0.2	<0.2	SC
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2	SC
Chlorobenzene	Phenyl Chloride	0.2	<0.2	SC
Chloroethane	Ethyl chloride	0.2	<0.2	SC
Chloroform	Trichloromethane	0.2	<0.2	SC
Chloromethane	Methyl chloride	0.2	<0.2	SC
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2	SC
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2	SC
Ethylbenzene		0.2	<0.2	SC
Freon 12	Dichlorodifluoromethane	0.2	<0.2	SC
Freon 11	Trichlorofluoromethane	0.2	<0.2	SC
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2	SC
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2	SC
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2	SC

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
Dichloromethane	Methylene chloride	0.2	<0.2	SC
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4	SC
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2	SC
Styrene	Vinyl benzene	0.2	<0.2	SC
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2	SC
Toluene	Methyl Benzene	0.2	<0.2	SC
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2	SC
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2	SC
Vinyl chloride	Chloroethene	0.2	<0.2	SC
1,2,4-Trichlorobenzene		0.2	<0.2	SC
1,3-Butadiene		0.2	<0.2	SC
1,4-Dioxane		0.2	<0.2	SC
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2	SC
4-Ethyltoluene		0.2	<0.2	SC
Acetone	2-Propanone	0.2	<0.2	SC
Allyl chloride	3-Chloropropene	0.2	<0.2	SC
Bromodichloromethane		0.2	<0.2	SC
Bromoform	Tribromomethane	0.2	<0.2	SC
Carbon disulfide		0.2	<0.2	SC
Cyclohexane		0.2	<0.2	SC
Dibromochloromethane		0.2	<0.2	SC
Ethyl acetate		0.2	<0.2	SC
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2	SC
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2	SC
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2	SC
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2	SC
Methyl tert-butyl ether	MTBE	0.2	<0.2	SC
n-Heptane		0.2	<0.2	SC
n-Hexane		0.2	<0.2	SC
Propene	Propylene	0.2	<0.2	SC
Tetrahydrofuran	THF	0.2	<0.2	SC
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2	SC
Vinyl acetate		0.2	<0.2	SC
Bromoethene	Vinyl bromide	0.2	<0.2	SC
Benzyl chloride	α-Chlorotoluene	0.2	<0.2	SC
Methanol		0.2	<0.2	SC
Ethanol		0.2	<0.2	SC
Acetonitrile		0.2	<0.2	SC
Acrolein	2-Propenal	0.2	<0.2	SC
Acrylonitrile	2-Propenenitrile	0.2	<0.2	SC
tert-Butyl alcohol	TBA	0.2	<0.2	SC
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2	SC
Diisopropyl Ether		0.2	<0.2	SC
Ethyl tert-butyl ether	ETBE	0.2	<0.2	SC
tert-Amyl methyl ether	TAME	0.2	<0.2	SC
Methyl methacrylate		0.2	<0.2	SC
1,1,1,2-Tetrachloroethane		0.2	<0.2	SC
Isopropylbenzene	Cumene	0.2	<0.2	SC
2-Chlorotoluene		0.2	<0.2	SC
n-Propylbenzene		0.2	<0.2	SC
tert-Butylbenzene		0.2	<0.2	SC
sec-Butylbenzene		0.2	<0.2	SC
2-Isopropyltoluene	o-Cymene	0.2	<0.2	SC
n-Butylbenzene		0.2	<0.2	SC
Naphthalene		0.2	<0.2	SC

SC = Supplier Certified

Canister Verification Report

Canister No: 4760

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	12-Jul-2011
		Valid To (At least):	02-Aug-2011
		Verification File:	110712_10.D
Canister Type:	Entech Silonite - Summa Style	**Stability Check:**	07-Aug-2009
Canister Size:	6L	**Next Check Due:**	07-Aug-2011
Valve Type:	Nupro/Swagelok	**Analyst**	Daniel.Junek

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
1,1,1-Trichloroethane	1,1,1-TCA / Methyl Chloroform	0.2	<0.2	SC
1,1,2,2-Tetrachloroethane		0.2	<0.2	SC
1,1,2-Trichloroethane		0.2	<0.2	SC
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2	SC
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2	SC
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2	SC
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2	SC
1,2-Dibromoethane	EDB / Ethylene Dibromide	0.2	<0.2	SC
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2	SC
1,2-Dichloropropane		0.2	<0.2	SC
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2	SC
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2	SC
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2	SC
Benzene	Cyclohexatriene	0.2	<0.2	SC
Bromomethane	Methyl bromide	0.2	<0.2	SC
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2	SC
Chlorobenzene	Phenyl Chloride	0.2	<0.2	SC
Chloroethane	Ethyl chloride	0.2	<0.2	SC
Chloroform	Trichloromethane	0.2	<0.2	SC
Chloromethane	Methyl chloride	0.2	<0.2	SC
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2	SC
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2	SC
Ethylbenzene		0.2	<0.2	SC
Freon 12	Dichlorodifluoromethane	0.2	<0.2	SC
Freon 11	Trichlorofluoromethane	0.2	<0.2	SC
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2	SC
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2	SC
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2	SC

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
Dichloromethane	Methylene chloride	0.2	<0.2	SC
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4	SC
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2	SC
Styrene	Vinyl benzene	0.2	<0.2	SC
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2	SC
Toluene	Methyl Benzene	0.2	<0.2	SC
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2	SC
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2	SC
Vinyl chloride	Chloroethene	0.2	<0.2	SC
1,2,4-Trichlorobenzene		0.2	<0.2	SC
1,3-Butadiene		0.2	<0.2	SC
1,4-Dioxane		0.2	<0.2	SC
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2	SC
4-Ethyltoluene		0.2	<0.2	SC
Acetone	2-Propanone	0.2	<0.2	SC
Allyl chloride	3-Chloropropene	0.2	<0.2	SC
Bromodichloromethane		0.2	<0.2	SC
Bromoform	Tribromomethane	0.2	<0.2	SC
Carbon disulfide		0.2	<0.2	SC
Cyclohexane		0.2	<0.2	SC
Dibromochloromethane		0.2	<0.2	SC
Ethyl acetate		0.2	<0.2	SC
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2	SC
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2	SC
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2	SC
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2	SC
Methyl tert-butyl ether	MTBE	0.2	<0.2	SC
n-Heptane		0.2	<0.2	SC
n-Hexane		0.2	<0.2	SC
Propene	Propylene	0.2	<0.2	SC
Tetrahydrofuran	THF	0.2	<0.2	SC
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2	SC
Vinyl acetate		0.2	<0.2	SC
Bromoethene	Vinyl bromide	0.2	<0.2	SC
Benzyl chloride	α-Chlorotoluene	0.2	<0.2	SC
Methanol		0.2	<0.2	SC
Ethanol		0.2	<0.2	SC
Acetonitrile		0.2	<0.2	SC
Acrolein	2-Propenal	0.2	<0.2	SC
Acrylonitrile	2-Propenenitrile	0.2	<0.2	SC
tert-Butyl alcohol	TBA	0.2	<0.2	SC
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2	SC
Diisopropyl Ether		0.2	<0.2	SC
Ethyl tert-butyl ether	ETBE	0.2	<0.2	SC
tert-Amyl methyl ether	TAME	0.2	<0.2	SC
Methyl methacrylate		0.2	<0.2	SC
1,1,1,2-Tetrachloroethane		0.2	<0.2	SC
Isopropylbenzene	Cumene	0.2	<0.2	SC
2-Chlorotoluene		0.2	<0.2	SC
n-Propylbenzene		0.2	<0.2	SC
tert-Butylbenzene		0.2	<0.2	SC
sec-Butylbenzene		0.2	<0.2	SC
2-Isopropyltoluene	o-Cymene	0.2	<0.2	SC
n-Butylbenzene		0.2	<0.2	SC
Naphthalene		0.2	<0.2	SC

Canister Verification Report

Canister No: 4768

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	12-Jul-2011
		Valid To (At least):	02-Aug-2011
		Verification File:	110712_11.D
Canister Type:	Entech Silonite - Summa Style	**Stability Check:**	12-Aug-2009
Canister Size:	6L	**Next Check Due:**	12-Aug-2011
Valve Type:	Nupro/Swagelok	**Analyst**	Daniel.Junek

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
1,1,1-Trichloroethane	1,1,1-TCA / Methyl Chloroform	0.2	<0.2	SC
1,1,2,2-Tetrachloroethane		0.2	<0.2	SC
1,1,2-Trichloroethane		0.2	<0.2	SC
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2	SC
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2	SC
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2	SC
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2	SC
1,2-Dibromoethane	EDB / Ethylene Dibromide	0.2	<0.2	SC
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2	SC
1,2-Dichloropropane		0.2	<0.2	SC
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2	SC
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2	SC
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2	SC
Benzene	Cyclohexatriene	0.2	<0.2	SC
Bromomethane	Methyl bromide	0.2	<0.2	SC
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2	SC
Chlorobenzene	Phenyl Chloride	0.2	<0.2	SC
Chloroethane	Ethyl chloride	0.2	<0.2	SC
Chloroform	Trichloromethane	0.2	<0.2	SC
Chloromethane	Methyl chloride	0.2	<0.2	SC
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2	SC
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2	SC
Ethylbenzene		0.2	<0.2	SC
Freon 12	Dichlorodifluoromethane	0.2	<0.2	SC
Freon 11	Trichlorofluoromethane	0.2	<0.2	SC
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2	SC
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2	SC
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2	SC

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
Dichloromethane	Methylene chloride	0.2	<0.2	SC
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4	SC
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2	SC
Styrene	Vinyl benzene	0.2	<0.2	SC
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2	SC
Toluene	Methyl Benzene	0.2	<0.2	SC
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2	SC
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2	SC
Vinyl chloride	Chloroethene	0.2	<0.2	SC
1,2,4-Trichlorobenzene		0.2	<0.2	SC
1,3-Butadiene		0.2	<0.2	SC
1,4-Dioxane		0.2	<0.2	SC
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2	SC
4-Ethyltoluene		0.2	<0.2	SC
Acetone	2-Propanone	0.2	<0.2	SC
Allyl chloride	3-Chloropropene	0.2	<0.2	SC
Bromodichloromethane		0.2	<0.2	SC
Bromoform	Tribromomethane	0.2	<0.2	SC
Carbon disulfide		0.2	<0.2	SC
Cyclohexane		0.2	<0.2	SC
Dibromochloromethane		0.2	<0.2	SC
Ethyl acetate		0.2	<0.2	SC
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2	SC
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2	SC
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2	SC
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2	SC
Methyl tert-butyl ether	MTBE	0.2	<0.2	SC
n-Heptane		0.2	<0.2	SC
n-Hexane		0.2	<0.2	SC
Propene	Propylene	0.2	<0.2	SC
Tetrahydrofuran	THF	0.2	<0.2	SC
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2	SC
Vinyl acetate		0.2	<0.2	SC
Bromoethene	Vinyl bromide	0.2	<0.2	SC
Benzyl chloride	α-Chlorotoluene	0.2	<0.2	SC
Methanol		0.2	<0.2	SC
Ethanol		0.2	<0.2	SC
Acetonitrile		0.2	<0.2	SC
Acrolein	2-Propenal	0.2	<0.2	SC
Acrylonitrile	2-Propenenitrile	0.2	<0.2	SC
tert-Butyl alcohol	TBA	0.2	<0.2	SC
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2	SC
Diisopropyl Ether		0.2	<0.2	SC
Ethyl tert-butyl ether	ETBE	0.2	<0.2	SC
tert-Amyl methyl ether	TAME	0.2	<0.2	SC
Methyl methacrylate		0.2	<0.2	SC
1,1,1,2-Tetrachloroethane		0.2	<0.2	SC
Isopropylbenzene	Cumene	0.2	<0.2	SC
2-Chlorotoluene		0.2	<0.2	SC
n-Propylbenzene		0.2	<0.2	SC
tert-Butylbenzene		0.2	<0.2	SC
sec-Butylbenzene		0.2	<0.2	SC
2-Isopropyltoluene	o-Cymene	0.2	<0.2	SC
n-Butylbenzene		0.2	<0.2	SC
Naphthalene		0.2	<0.2	SC

SC = Supplier Certified

Canister Verification Report

Canister No: 4772

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	14-Jul-2011
		Valid To (At least):	04-Aug-2011
		Verification File:	110714_07.D
Canister Type:	Entech Silonite - Summa Style	**Stability Check:**	12-Aug-2009
Canister Size:	6L	**Next Check Due:**	12-Aug-2011
Valve Type:	Nupro/Swagelok	**Analyst**	Daniel.Junek

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
1,1,1-Trichloroethane	1,1,1-TCA / Methyl Chloroform	0.2	<0.2	SC
1,1,2,2-Tetrachloroethane		0.2	<0.2	SC
1,1,2-Trichloroethane		0.2	<0.2	SC
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2	SC
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2	SC
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2	SC
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2	SC
1,2-Dibromoethane	EDB / Ethylene Dibromide	0.2	<0.2	SC
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2	SC
1,2-Dichloropropane		0.2	<0.2	SC
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2	SC
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2	SC
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2	SC
Benzene	Cyclohexatriene	0.2	<0.2	SC
Bromomethane	Methyl bromide	0.2	<0.2	SC
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2	SC
Chlorobenzene	Phenyl Chloride	0.2	<0.2	SC
Chloroethane	Ethyl chloride	0.2	<0.2	SC
Chloroform	Trichloromethane	0.2	<0.2	SC
Chloromethane	Methyl chloride	0.2	<0.2	SC
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2	SC
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2	SC
Ethylbenzene		0.2	<0.2	SC
Freon 12	Dichlorodifluoromethane	0.2	<0.2	SC
Freon 11	Trichlorofluoromethane	0.2	<0.2	SC
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2	SC
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2	SC
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2	SC

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
Dichloromethane	Methylene chloride	0.2	<0.2	SC
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4	SC
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2	SC
Styrene	Vinyl benzene	0.2	<0.2	SC
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2	SC
Toluene	Methyl Benzene	0.2	<0.2	SC
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2	SC
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2	SC
Vinyl chloride	Chloroethene	0.2	<0.2	SC
1,2,4-Trichlorobenzene		0.2	<0.2	SC
1,3-Butadiene		0.2	<0.2	SC
1,4-Dioxane		0.2	<0.2	SC
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2	SC
4-Ethyltoluene		0.2	<0.2	SC
Acetone	2-Propanone	0.2	<0.2	SC
Allyl chloride	3-Chloropropene	0.2	<0.2	SC
Bromodichloromethane		0.2	<0.2	SC
Bromoform	Tribromomethane	0.2	<0.2	SC
Carbon disulfide		0.2	<0.2	SC
Cyclohexane		0.2	<0.2	SC
Dibromochloromethane		0.2	<0.2	SC
Ethyl acetate		0.2	<0.2	SC
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2	SC
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2	SC
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2	SC
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2	SC
Methyl tert-butyl ether	MTBE	0.2	<0.2	SC
n-Heptane		0.2	<0.2	SC
n-Hexane		0.2	<0.2	SC
Propene	Propylene	0.2	<0.2	SC
Tetrahydrofuran	THF	0.2	<0.2	SC
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2	SC
Vinyl acetate		0.2	<0.2	SC
Bromoethene	Vinyl bromide	0.2	<0.2	SC
Benzyl chloride	α-Chlorotoluene	0.2	<0.2	SC
Methanol		0.2	<0.2	SC
Ethanol		0.2	<0.2	SC
Acetonitrile		0.2	<0.2	SC
Acrolein	2-Propenal	0.2	<0.2	SC
Acrylonitrile	2-Propenenitrile	0.2	<0.2	SC
tert-Butyl alcohol	TBA	0.2	<0.2	SC
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2	SC
Diisopropyl Ether		0.2	<0.2	SC
Ethyl tert-butyl ether	ETBE	0.2	<0.2	SC
tert-Amyl methyl ether	TAME	0.2	<0.2	SC
Methyl methacrylate		0.2	<0.2	SC
1,1,1,2-Tetrachloroethane		0.2	<0.2	SC
Isopropylbenzene	Cumene	0.2	<0.2	SC
2-Chlorotoluene		0.2	<0.2	SC
n-Propylbenzene		0.2	<0.2	SC
tert-Butylbenzene		0.2	<0.2	SC
sec-Butylbenzene		0.2	<0.2	SC
2-Isopropyltoluene	o-Cymene	0.2	<0.2	SC
n-Butylbenzene		0.2	<0.2	SC
Naphthalene		0.2	<0.2	SC

SC = Supplier Certified

Canister Verification Report

Canister No: 4777

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	12-Jul-2011
		Valid To (At least):	02-Aug-2011
		Verification File:	110712_12.D
Canister Type:	Entech Silonite - Summa Style	**Stability Check:**	12-Aug-2009
Canister Size:	6L	**Next Check Due:**	12-Aug-2011
Valve Type:	Nupro/Swagelok	**Analyst**	Daniel.Junek

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
1,1,1-Trichloroethane	1,1,1-TCA / Methyl Chloroform	0.2	<0.2	SC
1,1,2,2-Tetrachloroethane		0.2	<0.2	SC
1,1,2-Trichloroethane		0.2	<0.2	SC
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2	SC
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2	SC
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2	SC
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2	SC
1,2-Dibromoethane	EDB / Ethylene Dibromide	0.2	<0.2	SC
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2	SC
1,2-Dichloropropane		0.2	<0.2	SC
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2	SC
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2	SC
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2	SC
Benzene	Cyclohexatriene	0.2	<0.2	SC
Bromomethane	Methyl bromide	0.2	<0.2	SC
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2	SC
Chlorobenzene	Phenyl Chloride	0.2	<0.2	SC
Chloroethane	Ethyl chloride	0.2	<0.2	SC
Chloroform	Trichloromethane	0.2	<0.2	SC
Chloromethane	Methyl chloride	0.2	<0.2	SC
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2	SC
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2	SC
Ethylbenzene		0.2	<0.2	SC
Freon 12	Dichlorodifluoromethane	0.2	<0.2	SC
Freon 11	Trichlorofluoromethane	0.2	<0.2	SC
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2	SC
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2	SC
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2	SC

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
Dichloromethane	Methylene chloride	0.2	<0.2	SC
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4	SC
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2	SC
Styrene	Vinyl benzene	0.2	<0.2	SC
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2	SC
Toluene	Methyl Benzene	0.2	<0.2	SC
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2	SC
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2	SC
Vinyl chloride	Chloroethene	0.2	<0.2	SC
1,2,4-Trichlorobenzene		0.2	<0.2	SC
1,3-Butadiene		0.2	<0.2	SC
1,4-Dioxane		0.2	<0.2	SC
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2	SC
4-Ethyltoluene		0.2	<0.2	SC
Acetone	2-Propanone	0.2	<0.2	SC
Allyl chloride	3-Chloropropene	0.2	<0.2	SC
Bromodichloromethane		0.2	<0.2	SC
Bromoform	Tribromomethane	0.2	<0.2	SC
Carbon disulfide		0.2	<0.2	SC
Cyclohexane		0.2	<0.2	SC
Dibromochloromethane		0.2	<0.2	SC
Ethyl acetate		0.2	<0.2	SC
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2	SC
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2	SC
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2	SC
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2	SC
Methyl tert-butyl ether	MTBE	0.2	<0.2	SC
n-Heptane		0.2	<0.2	SC
n-Hexane		0.2	<0.2	SC
Propene	Propylene	0.2	<0.2	SC
Tetrahydrofuran	THF	0.2	<0.2	SC
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2	SC
Vinyl acetate		0.2	<0.2	SC
Bromoethene	Vinyl bromide	0.2	<0.2	SC
Benzyl chloride	α-Chlorotoluene	0.2	<0.2	SC
Methanol		0.2	<0.2	SC
Ethanol		0.2	<0.2	SC
Acetonitrile		0.2	<0.2	SC
Acrolein	2-Propenal	0.2	<0.2	SC
Acrylonitrile	2-Propenenitrile	0.2	<0.2	SC
tert-Butyl alcohol	TBA	0.2	<0.2	SC
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2	SC
Diisopropyl Ether		0.2	<0.2	SC
Ethyl tert-butyl ether	ETBE	0.2	<0.2	SC
tert-Amyl methyl ether	TAME	0.2	<0.2	SC
Methyl methacrylate		0.2	<0.2	SC
1,1,1,2-Tetrachloroethane		0.2	<0.2	SC
Isopropylbenzene	Cumene	0.2	<0.2	SC
2-Chlorotoluene		0.2	<0.2	SC
n-Propylbenzene		0.2	<0.2	SC
tert-Butylbenzene		0.2	<0.2	SC
sec-Butylbenzene		0.2	<0.2	SC
2-Isopropyltoluene	o-Cymene	0.2	<0.2	SC
n-Butylbenzene		0.2	<0.2	SC
Naphthalene		0.2	<0.2	SC

Canister Verification Report

Canister No: 4780

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	14-Jul-2011
		Valid To (At least):	04-Aug-2011
		Verification File:	110714_14.D
Canister Type:	Entech Silonite - Summa Style	**Stability Check:**	17-Aug-2009
Canister Size:	6L	**Next Check Due:**	17-Aug-2011
Valve Type:	Nupro/Swagelok	**Analyst**	Daniel.Junek

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
1,1,1-Trichloroethane	1,1,1-TCA / Methyl Chloroform	0.2	<0.2	SC
1,1,2,2-Tetrachloroethane		0.2	<0.2	SC
1,1,2-Trichloroethane		0.2	<0.2	SC
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2	SC
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2	SC
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2	SC
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2	SC
1,2-Dibromoethane	EDB / Ethylene Dibromide	0.2	<0.2	SC
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2	SC
1,2-Dichloropropane		0.2	<0.2	SC
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2	SC
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2	SC
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2	SC
Benzene	Cyclohexatriene	0.2	<0.2	SC
Bromomethane	Methyl bromide	0.2	<0.2	SC
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2	SC
Chlorobenzene	Phenyl Chloride	0.2	<0.2	SC
Chloroethane	Ethyl chloride	0.2	<0.2	SC
Chloroform	Trichloromethane	0.2	<0.2	SC
Chloromethane	Methyl chloride	0.2	<0.2	SC
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2	SC
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2	SC
Ethylbenzene		0.2	<0.2	SC
Freon 12	Dichlorodifluoromethane	0.2	<0.2	SC
Freon 11	Trichlorofluoromethane	0.2	<0.2	SC
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2	SC
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2	SC
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2	SC

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
Dichloromethane	Methylene chloride	0.2	<0.2	SC
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4	SC
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2	SC
Styrene	Vinyl benzene	0.2	<0.2	SC
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2	SC
Toluene	Methyl Benzene	0.2	<0.2	SC
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2	SC
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2	SC
Vinyl chloride	Chloroethene	0.2	<0.2	SC
1,2,4-Trichlorobenzene		0.2	<0.2	SC
1,3-Butadiene		0.2	<0.2	SC
1,4-Dioxane		0.2	<0.2	SC
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2	SC
4-Ethyltoluene		0.2	<0.2	SC
Acetone	2-Propanone	0.2	<0.2	SC
Allyl chloride	3-Chloropropene	0.2	<0.2	SC
Bromodichloromethane		0.2	<0.2	SC
Bromoform	Tribromomethane	0.2	<0.2	SC
Carbon disulfide		0.2	<0.2	SC
Cyclohexane		0.2	<0.2	SC
Dibromochloromethane		0.2	<0.2	SC
Ethyl acetate		0.2	<0.2	SC
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2	SC
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2	SC
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2	SC
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2	SC
Methyl tert-butyl ether	MTBE	0.2	<0.2	SC
n-Heptane		0.2	<0.2	SC
n-Hexane		0.2	<0.2	SC
Propene	Propylene	0.2	<0.2	SC
Tetrahydrofuran	THF	0.2	<0.2	SC
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2	SC
Vinyl acetate		0.2	<0.2	SC
Bromoethene	Vinyl bromide	0.2	<0.2	SC
Benzyl chloride	α-Chlorotoluene	0.2	<0.2	SC
Methanol		0.2	<0.2	SC
Ethanol		0.2	<0.2	SC
Acetonitrile		0.2	<0.2	SC
Acrolein	2-Propenal	0.2	<0.2	SC
Acrylonitrile	2-Propenenitrile	0.2	<0.2	SC
tert-Butyl alcohol	TBA	0.2	<0.2	SC
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2	SC
Diisopropyl Ether		0.2	<0.2	SC
Ethyl tert-butyl ether	ETBE	0.2	<0.2	SC
tert-Amyl methyl ether	TAME	0.2	<0.2	SC
Methyl methacrylate		0.2	<0.2	SC
1,1,1,2-Tetrachloroethane		0.2	<0.2	SC
Isopropylbenzene	Cumene	0.2	<0.2	SC
2-Chlorotoluene		0.2	<0.2	SC
n-Propylbenzene		0.2	<0.2	SC
tert-Butylbenzene		0.2	<0.2	SC
sec-Butylbenzene		0.2	<0.2	SC
2-Isopropyltoluene	o-Cymene	0.2	<0.2	SC
n-Butylbenzene		0.2	<0.2	SC
Naphthalene		0.2	<0.2	SC

Canister Verification Report

Canister No: 4974

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	14-Jul-2011
		Valid To (At least):	04-Aug-2011
		Verification File:	110714_08.D
Canister Type:	Entech Silonite - Summa Style	**Stability Check:**	16-Jul-2010
Canister Size:	6L	**Next Check Due:**	15-Jul-2012
Valve Type:	Nupro/Swagelok	**Analyst**	Daniel.Junek

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
1,1,1-Trichloroethane	1,1,1-TCA / Methyl Chloroform	0.2	<0.2	SC
1,1,2,2-Tetrachloroethane		0.2	<0.2	SC
1,1,2-Trichloroethane		0.2	<0.2	SC
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2	SC
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2	SC
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2	SC
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2	SC
1,2-Dibromoethane	EDB / Ethylene Dibromide	0.2	<0.2	SC
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2	SC
1,2-Dichloropropane		0.2	<0.2	SC
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2	SC
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2	SC
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2	SC
Benzene	Cyclohexatriene	0.2	<0.2	SC
Bromomethane	Methyl bromide	0.2	<0.2	SC
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2	SC
Chlorobenzene	Phenyl Chloride	0.2	<0.2	SC
Chloroethane	Ethyl chloride	0.2	<0.2	SC
Chloroform	Trichloromethane	0.2	<0.2	SC
Chloromethane	Methyl chloride	0.2	<0.2	SC
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2	SC
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2	SC
Ethylbenzene		0.2	<0.2	SC
Freon 12	Dichlorodifluoromethane	0.2	<0.2	SC
Freon 11	Trichlorofluoromethane	0.2	<0.2	SC
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2	SC
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2	SC
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2	SC

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
Dichloromethane	Methylene chloride	0.2	<0.2	SC
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4	SC
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2	SC
Styrene	Vinyl benzene	0.2	<0.2	SC
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2	SC
Toluene	Methyl Benzene	0.2	<0.2	SC
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2	SC
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2	SC
Vinyl chloride	Chloroethene	0.2	<0.2	SC
1,2,4-Trichlorobenzene		0.2	<0.2	SC
1,3-Butadiene		0.2	<0.2	SC
1,4-Dioxane		0.2	<0.2	SC
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2	SC
4-Ethyltoluene		0.2	<0.2	SC
Acetone	2-Propanone	0.2	<0.2	SC
Allyl chloride	3-Chloropropene	0.2	<0.2	SC
Bromodichloromethane		0.2	<0.2	SC
Bromoform	Tribromomethane	0.2	<0.2	SC
Carbon disulfide		0.2	<0.2	SC
Cyclohexane		0.2	<0.2	SC
Dibromochloromethane		0.2	<0.2	SC
Ethyl acetate		0.2	<0.2	SC
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2	SC
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2	SC
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2	SC
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2	SC
Methyl tert-butyl ether	MTBE	0.2	<0.2	SC
n-Heptane		0.2	<0.2	SC
n-Hexane		0.2	<0.2	SC
Propene	Propylene	0.2	<0.2	SC
Tetrahydrofuran	THF	0.2	<0.2	SC
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2	SC
Vinyl acetate		0.2	<0.2	SC
Bromoethene	Vinyl bromide	0.2	<0.2	SC
Benzyl chloride	α-Chlorotoluene	0.2	<0.2	SC
Methanol		0.2	<0.2	SC
Ethanol		0.2	<0.2	SC
Acetonitrile		0.2	<0.2	SC
Acrolein	2-Propenal	0.2	<0.2	SC
Acrylonitrile	2-Propenenitrile	0.2	<0.2	SC
tert-Butyl alcohol	TBA	0.2	<0.2	SC
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2	SC
Diisopropyl Ether		0.2	<0.2	SC
Ethyl tert-butyl ether	ETBE	0.2	<0.2	SC
tert-Amyl methyl ether	TAME	0.2	<0.2	SC
Methyl methacrylate		0.2	<0.2	SC
1,1,1,2-Tetrachloroethane		0.2	<0.2	SC
Isopropylbenzene	Cumene	0.2	<0.2	SC
2-Chlorotoluene		0.2	<0.2	SC
n-Propylbenzene		0.2	<0.2	SC
tert-Butylbenzene		0.2	<0.2	SC
sec-Butylbenzene		0.2	<0.2	SC
2-Isopropyltoluene	o-Cymene	0.2	<0.2	SC
n-Butylbenzene		0.2	<0.2	SC
Naphthalene		0.2	<0.2	SC

Canister Verification Report

Canister No: 4977

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	12-Jul-2011
		Valid To (At least):	02-Aug-2011
		Verification File:	110712_13.D
Canister Type:	Entech Silonite - Summa Style	**Stability Check:**	16-Jul-2010
Canister Size:	6L	**Next Check Due:**	15-Jul-2012
Valve Type:	Nupro/Swagelok	**Analyst**	Daniel.Junek

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
1,1,1-Trichloroethane	1,1,1-TCA / Methyl Chloroform	0.2	<0.2	SC
1,1,2,2-Tetrachloroethane		0.2	<0.2	SC
1,1,2-Trichloroethane		0.2	<0.2	SC
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2	SC
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2	SC
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2	SC
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2	SC
1,2-Dibromoethane	EDB / Ethylene Dibromide	0.2	<0.2	SC
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2	SC
1,2-Dichloropropane		0.2	<0.2	SC
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2	SC
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2	SC
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2	SC
Benzene	Cyclohexatriene	0.2	<0.2	SC
Bromomethane	Methyl bromide	0.2	<0.2	SC
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2	SC
Chlorobenzene	Phenyl Chloride	0.2	<0.2	SC
Chloroethane	Ethyl chloride	0.2	<0.2	SC
Chloroform	Trichloromethane	0.2	<0.2	SC
Chloromethane	Methyl chloride	0.2	<0.2	SC
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2	SC
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2	SC
Ethylbenzene		0.2	<0.2	SC
Freon 12	Dichlorodifluoromethane	0.2	<0.2	SC
Freon 11	Trichlorofluoromethane	0.2	<0.2	SC
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2	SC
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2	SC
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2	SC

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
Dichloromethane	Methylene chloride	0.2	<0.2	SC
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4	SC
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2	SC
Styrene	Vinyl benzene	0.2	<0.2	SC
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2	SC
Toluene	Methyl Benzene	0.2	<0.2	SC
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2	SC
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2	SC
Vinyl chloride	Chloroethene	0.2	<0.2	SC
1,2,4-Trichlorobenzene		0.2	<0.2	SC
1,3-Butadiene		0.2	<0.2	SC
1,4-Dioxane		0.2	<0.2	SC
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2	SC
4-Ethyltoluene		0.2	<0.2	SC
Acetone	2-Propanone	0.2	<0.2	SC
Allyl chloride	3-Chloropropene	0.2	<0.2	SC
Bromodichloromethane		0.2	<0.2	SC
Bromoform	Tribromomethane	0.2	<0.2	SC
Carbon disulfide		0.2	<0.2	SC
Cyclohexane		0.2	<0.2	SC
Dibromochloromethane		0.2	<0.2	SC
Ethyl acetate		0.2	<0.2	SC
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2	SC
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2	SC
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2	SC
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2	SC
Methyl tert-butyl ether	MTBE	0.2	<0.2	SC
n-Heptane		0.2	<0.2	SC
n-Hexane		0.2	<0.2	SC
Propene	Propylene	0.2	<0.2	SC
Tetrahydrofuran	THF	0.2	<0.2	SC
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2	SC
Vinyl acetate		0.2	<0.2	SC
Bromoethene	Vinyl bromide	0.2	<0.2	SC
Benzyl chloride	α-Chlorotoluene	0.2	<0.2	SC
Methanol		0.2	<0.2	SC
Ethanol		0.2	<0.2	SC
Acetonitrile		0.2	<0.2	SC
Acrolein	2-Propenal	0.2	<0.2	SC
Acrylonitrile	2-Propenenitrile	0.2	<0.2	SC
tert-Butyl alcohol	TBA	0.2	<0.2	SC
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2	SC
Diisopropyl Ether		0.2	<0.2	SC
Ethyl tert-butyl ether	ETBE	0.2	<0.2	SC
tert-Amyl methyl ether	TAME	0.2	<0.2	SC
Methyl methacrylate		0.2	<0.2	SC
1,1,1,2-Tetrachloroethane		0.2	<0.2	SC
Isopropylbenzene	Cumene	0.2	<0.2	SC
2-Chlorotoluene		0.2	<0.2	SC
n-Propylbenzene		0.2	<0.2	SC
tert-Butylbenzene		0.2	<0.2	SC
sec-Butylbenzene		0.2	<0.2	SC
2-Isopropyltoluene	o-Cymene	0.2	<0.2	SC
n-Butylbenzene		0.2	<0.2	SC
Naphthalene		0.2	<0.2	SC

Canister Verification Report

Canister No: 4981

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	15-Jul-2011
		Valid To (At least):	05-Aug-2011
		Verification File:	110714_17.D
Canister Type:	Entech Silonite - Summa Style	**Stability Check:**	16-Jul-2010
Canister Size:	6L	**Next Check Due:**	15-Jul-2012
Valve Type:	Nupro/Swagelok	**Analyst**	Daniel.Junek

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
1,1,1-Trichloroethane	1,1,1-TCA / Methyl Chloroform	0.2	<0.2	SC
1,1,2,2-Tetrachloroethane		0.2	<0.2	SC
1,1,2-Trichloroethane		0.2	<0.2	SC
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2	SC
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2	SC
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2	SC
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2	SC
1,2-Dibromoethane	EDB / Ethylene Dibromide	0.2	<0.2	SC
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2	SC
1,2-Dichloropropane		0.2	<0.2	SC
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2	SC
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2	SC
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2	SC
Benzene	Cyclohexatriene	0.2	<0.2	SC
Bromomethane	Methyl bromide	0.2	<0.2	SC
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2	SC
Chlorobenzene	Phenyl Chloride	0.2	<0.2	SC
Chloroethane	Ethyl chloride	0.2	<0.2	SC
Chloroform	Trichloromethane	0.2	<0.2	SC
Chloromethane	Methyl chloride	0.2	<0.2	SC
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2	SC
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2	SC
Ethylbenzene		0.2	<0.2	SC
Freon 12	Dichlorodifluoromethane	0.2	<0.2	SC
Freon 11	Trichlorofluoromethane	0.2	<0.2	SC
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2	SC
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2	SC
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2	SC

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
Dichloromethane	Methylene chloride	0.2	<0.2	SC
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4	SC
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2	SC
Styrene	Vinyl benzene	0.2	<0.2	SC
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2	SC
Toluene	Methyl Benzene	0.2	<0.2	SC
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2	SC
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2	SC
Vinyl chloride	Chloroethene	0.2	<0.2	SC
1,2,4-Trichlorobenzene		0.2	<0.2	SC
1,3-Butadiene		0.2	<0.2	SC
1,4-Dioxane		0.2	<0.2	SC
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2	SC
4-Ethyltoluene		0.2	<0.2	SC
Acetone	2-Propanone	0.2	<0.2	SC
Allyl chloride	3-Chloropropene	0.2	<0.2	SC
Bromodichloromethane		0.2	<0.2	SC
Bromoform	Tribromomethane	0.2	<0.2	SC
Carbon disulfide		0.2	<0.2	SC
Cyclohexane		0.2	<0.2	SC
Dibromochloromethane		0.2	<0.2	SC
Ethyl acetate		0.2	<0.2	SC
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2	SC
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2	SC
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2	SC
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2	SC
Methyl tert-butyl ether	MTBE	0.2	<0.2	SC
n-Heptane		0.2	<0.2	SC
n-Hexane		0.2	<0.2	SC
Propene	Propylene	0.2	<0.2	SC
Tetrahydrofuran	THF	0.2	<0.2	SC
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2	SC
Vinyl acetate		0.2	<0.2	SC
Bromoethene	Vinyl bromide	0.2	<0.2	SC
Benzyl chloride	α-Chlorotoluene	0.2	<0.2	SC
Methanol		0.2	<0.2	SC
Ethanol		0.2	<0.2	SC
Acetonitrile		0.2	<0.2	SC
Acrolein	2-Propenal	0.2	<0.2	SC
Acrylonitrile	2-Propenenitrile	0.2	<0.2	SC
tert-Butyl alcohol	TBA	0.2	<0.2	SC
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2	SC
Diisopropyl Ether		0.2	<0.2	SC
Ethyl tert-butyl ether	ETBE	0.2	<0.2	SC
tert-Amyl methyl ether	TAME	0.2	<0.2	SC
Methyl methacrylate		0.2	<0.2	SC
1,1,1,2-Tetrachloroethane		0.2	<0.2	SC
Isopropylbenzene	Cumene	0.2	<0.2	SC
2-Chlorotoluene		0.2	<0.2	SC
n-Propylbenzene		0.2	<0.2	SC
tert-Butylbenzene		0.2	<0.2	SC
sec-Butylbenzene		0.2	<0.2	SC
2-Isopropyltoluene	o-Cymene	0.2	<0.2	SC
n-Butylbenzene		0.2	<0.2	SC
Naphthalene		0.2	<0.2	SC

SC = Supplier Certified

Canister Verification Report

Canister No: 4982

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	14-Jul-2011
		Valid To (At least):	04-Aug-2011
		Verification File:	110714_10.D
Canister Type:	Entech Silonite - Summa Style	**Stability Check:**	16-Jul-2010
Canister Size:	6L	**Next Check Due:**	15-Jul-2012
Valve Type:	Nupro/Swagelok	**Analyst**	Daniel.Junek

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
1,1,1-Trichloroethane	1,1,1-TCA / Methyl Chloroform	0.2	<0.2	SC
1,1,2,2-Tetrachloroethane		0.2	<0.2	SC
1,1,2-Trichloroethane		0.2	<0.2	SC
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2	SC
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2	SC
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2	SC
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2	SC
1,2-Dibromoethane	EDB / Ethylene Dibromide	0.2	<0.2	SC
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2	SC
1,2-Dichloropropane		0.2	<0.2	SC
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2	SC
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2	SC
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2	SC
Benzene	Cyclohexatriene	0.2	<0.2	SC
Bromomethane	Methyl bromide	0.2	<0.2	SC
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2	SC
Chlorobenzene	Phenyl Chloride	0.2	<0.2	SC
Chloroethane	Ethyl chloride	0.2	<0.2	SC
Chloroform	Trichloromethane	0.2	<0.2	SC
Chloromethane	Methyl chloride	0.2	<0.2	SC
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2	SC
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2	SC
Ethylbenzene		0.2	<0.2	SC
Freon 12	Dichlorodifluoromethane	0.2	<0.2	SC
Freon 11	Trichlorofluoromethane	0.2	<0.2	SC
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2	SC
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2	SC
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2	SC

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
Dichloromethane	Methylene chloride	0.2	<0.2	SC
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4	SC
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2	SC
Styrene	Vinyl benzene	0.2	<0.2	SC
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2	SC
Toluene	Methyl Benzene	0.2	<0.2	SC
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2	SC
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2	SC
Vinyl chloride	Chloroethene	0.2	<0.2	SC
1,2,4-Trichlorobenzene		0.2	<0.2	SC
1,3-Butadiene		0.2	<0.2	SC
1,4-Dioxane		0.2	<0.2	SC
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2	SC
4-Ethyltoluene		0.2	<0.2	SC
Acetone	2-Propanone	0.2	<0.2	SC
Allyl chloride	3-Chloropropene	0.2	<0.2	SC
Bromodichloromethane		0.2	<0.2	SC
Bromoform	Tribromomethane	0.2	<0.2	SC
Carbon disulfide		0.2	<0.2	SC
Cyclohexane		0.2	<0.2	SC
Dibromochloromethane		0.2	<0.2	SC
Ethyl acetate		0.2	<0.2	SC
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2	SC
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2	SC
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2	SC
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2	SC
Methyl tert-butyl ether	MTBE	0.2	<0.2	SC
n-Heptane		0.2	<0.2	SC
n-Hexane		0.2	<0.2	SC
Propene	Propylene	0.2	<0.2	SC
Tetrahydrofuran	THF	0.2	<0.2	SC
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2	SC
Vinyl acetate		0.2	<0.2	SC
Bromoethene	Vinyl bromide	0.2	<0.2	SC
Benzyl chloride	α-Chlorotoluene	0.2	<0.2	SC
Methanol		0.2	<0.2	SC
Ethanol		0.2	<0.2	SC
Acetonitrile		0.2	<0.2	SC
Acrolein	2-Propenal	0.2	<0.2	SC
Acrylonitrile	2-Propenenitrile	0.2	<0.2	SC
tert-Butyl alcohol	TBA	0.2	<0.2	SC
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2	SC
Diisopropyl Ether		0.2	<0.2	SC
Ethyl tert-butyl ether	ETBE	0.2	<0.2	SC
tert-Amyl methyl ether	TAME	0.2	<0.2	SC
Methyl methacrylate		0.2	<0.2	SC
1,1,1,2-Tetrachloroethane		0.2	<0.2	SC
Isopropylbenzene	Cumene	0.2	<0.2	SC
2-Chlorotoluene		0.2	<0.2	SC
n-Propylbenzene		0.2	<0.2	SC
tert-Butylbenzene		0.2	<0.2	SC
sec-Butylbenzene		0.2	<0.2	SC
2-Isopropyltoluene	o-Cymene	0.2	<0.2	SC
n-Butylbenzene		0.2	<0.2	SC
Naphthalene		0.2	<0.2	SC

Canister Verification Report

Canister No: 4983

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	15-Jul-2011
		Valid To (At least):	05-Aug-2011
		Verification File:	110714_16.D
Canister Type:	Entech Silonite - Summa Style	**Stability Check:**	16-Jul-2010
Canister Size:	6L	**Next Check Due:**	15-Jul-2012
Valve Type:	Nupro/Swagelok	**Analyst**	Daniel.Junek

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
1,1,1-Trichloroethane	1,1,1-TCA / Methyl Chloroform	0.2	<0.2	SC
1,1,2,2-Tetrachloroethane		0.2	<0.2	SC
1,1,2-Trichloroethane		0.2	<0.2	SC
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2	SC
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2	SC
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2	SC
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2	SC
1,2-Dibromoethane	EDB / Ethylene Dibromide	0.2	<0.2	SC
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2	SC
1,2-Dichloropropane		0.2	<0.2	SC
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2	SC
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2	SC
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2	SC
Benzene	Cyclohexatriene	0.2	<0.2	SC
Bromomethane	Methyl bromide	0.2	<0.2	SC
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2	SC
Chlorobenzene	Phenyl Chloride	0.2	<0.2	SC
Chloroethane	Ethyl chloride	0.2	<0.2	SC
Chloroform	Trichloromethane	0.2	<0.2	SC
Chloromethane	Methyl chloride	0.2	<0.2	SC
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2	SC
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2	SC
Ethylbenzene		0.2	<0.2	SC
Freon 12	Dichlorodifluoromethane	0.2	<0.2	SC
Freon 11	Trichlorofluoromethane	0.2	<0.2	SC
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2	SC
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2	SC
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2	SC

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
Dichloromethane	Methylene chloride	0.2	<0.2	SC
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4	SC
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2	SC
Styrene	Vinyl benzene	0.2	<0.2	SC
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2	SC
Toluene	Methyl Benzene	0.2	<0.2	SC
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2	SC
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2	SC
Vinyl chloride	Chloroethene	0.2	<0.2	SC
1,2,4-Trichlorobenzene		0.2	<0.2	SC
1,3-Butadiene		0.2	<0.2	SC
1,4-Dioxane		0.2	<0.2	SC
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2	SC
4-Ethyltoluene		0.2	<0.2	SC
Acetone	2-Propanone	0.2	<0.2	SC
Allyl chloride	3-Chloropropene	0.2	<0.2	SC
Bromodichloromethane		0.2	<0.2	SC
Bromoform	Tribromomethane	0.2	<0.2	SC
Carbon disulfide		0.2	<0.2	SC
Cyclohexane		0.2	<0.2	SC
Dibromochloromethane		0.2	<0.2	SC
Ethyl acetate		0.2	<0.2	SC
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2	SC
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2	SC
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2	SC
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2	SC
Methyl tert-butyl ether	MTBE	0.2	<0.2	SC
n-Heptane		0.2	<0.2	SC
n-Hexane		0.2	<0.2	SC
Propene	Propylene	0.2	<0.2	SC
Tetrahydrofuran	THF	0.2	<0.2	SC
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2	SC
Vinyl acetate		0.2	<0.2	SC
Bromoethene	Vinyl bromide	0.2	<0.2	SC
Benzyl chloride	α-Chlorotoluene	0.2	<0.2	SC
Methanol		0.2	<0.2	SC
Ethanol		0.2	<0.2	SC
Acetonitrile		0.2	<0.2	SC
Acrolein	2-Propenal	0.2	<0.2	SC
Acrylonitrile	2-Propenenitrile	0.2	<0.2	SC
tert-Butyl alcohol	TBA	0.2	<0.2	SC
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2	SC
Diisopropyl Ether		0.2	<0.2	SC
Ethyl tert-butyl ether	ETBE	0.2	<0.2	SC
tert-Amyl methyl ether	TAME	0.2	<0.2	SC
Methyl methacrylate		0.2	<0.2	SC
1,1,1,2-Tetrachloroethane		0.2	<0.2	SC
Isopropylbenzene	Cumene	0.2	<0.2	SC
2-Chlorotoluene		0.2	<0.2	SC
n-Propylbenzene		0.2	<0.2	SC
tert-Butylbenzene		0.2	<0.2	SC
sec-Butylbenzene		0.2	<0.2	SC
2-Isopropyltoluene	o-Cymene	0.2	<0.2	SC
n-Butylbenzene		0.2	<0.2	SC
Naphthalene		0.2	<0.2	SC

Canister Verification Report

Canister No: 4985

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	15-Jul-2011
		Valid To (At least):	05-Aug-2011
		Verification File:	110714_15.D
Canister Type:	Entech Silonite - Summa Style	**Stability Check:**	16-Jul-2010
Canister Size:	6L	**Next Check Due:**	15-Jul-2012
Valve Type:	Nupro/Swagelok	**Analyst**	Daniel.Junek

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
1,1,1-Trichloroethane	1,1,1-TCA / Methyl Chloroform	0.2	<0.2	SC
1,1,2,2-Tetrachloroethane		0.2	<0.2	SC
1,1,2-Trichloroethane		0.2	<0.2	SC
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2	SC
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2	SC
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2	SC
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2	SC
1,2-Dibromoethane	EDB / Ethylene Dibromide	0.2	<0.2	SC
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2	SC
1,2-Dichloropropane		0.2	<0.2	SC
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2	SC
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2	SC
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2	SC
Benzene	Cyclohexatriene	0.2	<0.2	SC
Bromomethane	Methyl bromide	0.2	<0.2	SC
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2	SC
Chlorobenzene	Phenyl Chloride	0.2	<0.2	SC
Chloroethane	Ethyl chloride	0.2	<0.2	SC
Chloroform	Trichloromethane	0.2	<0.2	SC
Chloromethane	Methyl chloride	0.2	<0.2	SC
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2	SC
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2	SC
Ethylbenzene		0.2	<0.2	SC
Freon 12	Dichlorodifluoromethane	0.2	<0.2	SC
Freon 11	Trichlorofluoromethane	0.2	<0.2	SC
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2	SC
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2	SC
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2	SC

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
Dichloromethane	Methylene chloride	0.2	<0.2	SC
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4	SC
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2	SC
Styrene	Vinyl benzene	0.2	<0.2	SC
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2	SC
Toluene	Methyl Benzene	0.2	<0.2	SC
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2	SC
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2	SC
Vinyl chloride	Chloroethene	0.2	<0.2	SC
1,2,4-Trichlorobenzene		0.2	<0.2	SC
1,3-Butadiene		0.2	<0.2	SC
1,4-Dioxane		0.2	<0.2	SC
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2	SC
4-Ethyltoluene		0.2	<0.2	SC
Acetone	2-Propanone	0.2	<0.2	SC
Allyl chloride	3-Chloropropene	0.2	<0.2	SC
Bromodichloromethane		0.2	<0.2	SC
Bromoform	Tribromomethane	0.2	<0.2	SC
Carbon disulfide		0.2	<0.2	SC
Cyclohexane		0.2	<0.2	SC
Dibromochloromethane		0.2	<0.2	SC
Ethyl acetate		0.2	<0.2	SC
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2	SC
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2	SC
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2	SC
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2	SC
Methyl tert-butyl ether	MTBE	0.2	<0.2	SC
n-Heptane		0.2	<0.2	SC
n-Hexane		0.2	<0.2	SC
Propene	Propylene	0.2	<0.2	SC
Tetrahydrofuran	THF	0.2	<0.2	SC
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2	SC
Vinyl acetate		0.2	<0.2	SC
Bromoethene	Vinyl bromide	0.2	<0.2	SC
Benzyl chloride	α-Chlorotoluene	0.2	<0.2	SC
Methanol		0.2	<0.2	SC
Ethanol		0.2	<0.2	SC
Acetonitrile		0.2	<0.2	SC
Acrolein	2-Propenal	0.2	<0.2	SC
Acrylonitrile	2-Propenenitrile	0.2	<0.2	SC
tert-Butyl alcohol	TBA	0.2	<0.2	SC
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2	SC
Diisopropyl Ether		0.2	<0.2	SC
Ethyl tert-butyl ether	ETBE	0.2	<0.2	SC
tert-Amyl methyl ether	TAME	0.2	<0.2	SC
Methyl methacrylate		0.2	<0.2	SC
1,1,1,2-Tetrachloroethane		0.2	<0.2	SC
Isopropylbenzene	Cumene	0.2	<0.2	SC
2-Chlorotoluene		0.2	<0.2	SC
n-Propylbenzene		0.2	<0.2	SC
tert-Butylbenzene		0.2	<0.2	SC
sec-Butylbenzene		0.2	<0.2	SC
2-Isopropyltoluene	o-Cymene	0.2	<0.2	SC
n-Butylbenzene		0.2	<0.2	SC
Naphthalene		0.2	<0.2	SC

Canister Verification Report

Canister No: 4987

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	14-Jul-2011
		Valid To (At least):	04-Aug-2011
		Verification File:	110714_06.D
Canister Type:	Entech Silonite - Summa Style	**Stability Check:**	16-Jul-2010
Canister Size:	6L	**Next Check Due:**	15-Jul-2012
Valve Type:	Nupro/Swagelok	**Analyst**	Daniel.Junek

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
1,1,1-Trichloroethane	1,1,1-TCA / Methyl Chloroform	0.2	<0.2	SC
1,1,2,2-Tetrachloroethane		0.2	<0.2	SC
1,1,2-Trichloroethane		0.2	<0.2	SC
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2	SC
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2	SC
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2	SC
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2	SC
1,2-Dibromoethane	EDB / Ethylene Dibromide	0.2	<0.2	SC
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2	SC
1,2-Dichloropropane		0.2	<0.2	SC
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2	SC
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2	SC
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2	SC
Benzene	Cyclohexatriene	0.2	<0.2	SC
Bromomethane	Methyl bromide	0.2	<0.2	SC
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2	SC
Chlorobenzene	Phenyl Chloride	0.2	<0.2	SC
Chloroethane	Ethyl chloride	0.2	<0.2	SC
Chloroform	Trichloromethane	0.2	<0.2	SC
Chloromethane	Methyl chloride	0.2	<0.2	SC
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2	SC
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2	SC
Ethylbenzene		0.2	<0.2	SC
Freon 12	Dichlorodifluoromethane	0.2	<0.2	SC
Freon 11	Trichlorofluoromethane	0.2	<0.2	SC
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2	SC
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2	SC
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2	SC

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
Dichloromethane	Methylene chloride	0.2	<0.2	SC
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4	SC
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2	SC
Styrene	Vinyl benzene	0.2	<0.2	SC
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2	SC
Toluene	Methyl Benzene	0.2	<0.2	SC
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2	SC
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2	SC
Vinyl chloride	Chloroethene	0.2	<0.2	SC
1,2,4-Trichlorobenzene		0.2	<0.2	SC
1,3-Butadiene		0.2	<0.2	SC
1,4-Dioxane		0.2	<0.2	SC
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2	SC
4-Ethyltoluene		0.2	<0.2	SC
Acetone	2-Propanone	0.2	<0.2	SC
Allyl chloride	3-Chloropropene	0.2	<0.2	SC
Bromodichloromethane		0.2	<0.2	SC
Bromoform	Tribromomethane	0.2	<0.2	SC
Carbon disulfide		0.2	<0.2	SC
Cyclohexane		0.2	<0.2	SC
Dibromochloromethane		0.2	<0.2	SC
Ethyl acetate		0.2	<0.2	SC
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2	SC
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2	SC
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2	SC
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2	SC
Methyl tert-butyl ether	MTBE	0.2	<0.2	SC
n-Heptane		0.2	<0.2	SC
n-Hexane		0.2	<0.2	SC
Propene	Propylene	0.2	<0.2	SC
Tetrahydrofuran	THF	0.2	<0.2	SC
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2	SC
Vinyl acetate		0.2	<0.2	SC
Bromoethene	Vinyl bromide	0.2	<0.2	SC
Benzyl chloride	α-Chlorotoluene	0.2	<0.2	SC
Methanol		0.2	<0.2	SC
Ethanol		0.2	<0.2	SC
Acetonitrile		0.2	<0.2	SC
Acrolein	2-Propenal	0.2	<0.2	SC
Acrylonitrile	2-Propenenitrile	0.2	<0.2	SC
tert-Butyl alcohol	TBA	0.2	<0.2	SC
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2	SC
Diisopropyl Ether		0.2	<0.2	SC
Ethyl tert-butyl ether	ETBE	0.2	<0.2	SC
tert-Amyl methyl ether	TAME	0.2	<0.2	SC
Methyl methacrylate		0.2	<0.2	SC
1,1,1,2-Tetrachloroethane		0.2	<0.2	SC
Isopropylbenzene	Cumene	0.2	<0.2	SC
2-Chlorotoluene		0.2	<0.2	SC
n-Propylbenzene		0.2	<0.2	SC
tert-Butylbenzene		0.2	<0.2	SC
sec-Butylbenzene		0.2	<0.2	SC
2-Isopropyltoluene	o-Cymene	0.2	<0.2	SC
n-Butylbenzene		0.2	<0.2	SC
Naphthalene		0.2	<0.2	SC

Canister Verification Report

Canister No: 4989

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	14-Jul-2011
		Valid To (At least):	04-Aug-2011
		Verification File:	110714_12.D
Canister Type:	Entech Silonite - Summa Style	**Stability Check:**	16-Jul-2010
Canister Size:	6L	**Next Check Due:**	15-Jul-2012
Valve Type:	Nupro/Swagelok	**Analyst**	Daniel.Junek

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
1,1,1-Trichloroethane	1,1,1-TCA / Methyl Chloroform	0.2	<0.2	SC
1,1,2,2-Tetrachloroethane		0.2	<0.2	SC
1,1,2-Trichloroethane		0.2	<0.2	SC
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2	SC
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2	SC
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2	SC
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2	SC
1,2-Dibromoethane	EDB / Ethylene Dibromide	0.2	<0.2	SC
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2	SC
1,2-Dichloropropane		0.2	<0.2	SC
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2	SC
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2	SC
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2	SC
Benzene	Cyclohexatriene	0.2	<0.2	SC
Bromomethane	Methyl bromide	0.2	<0.2	SC
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2	SC
Chlorobenzene	Phenyl Chloride	0.2	<0.2	SC
Chloroethane	Ethyl chloride	0.2	<0.2	SC
Chloroform	Trichloromethane	0.2	<0.2	SC
Chloromethane	Methyl chloride	0.2	<0.2	SC
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2	SC
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2	SC
Ethylbenzene		0.2	<0.2	SC
Freon 12	Dichlorodifluoromethane	0.2	<0.2	SC
Freon 11	Trichlorofluoromethane	0.2	<0.2	SC
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2	SC
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2	SC
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2	SC

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
Dichloromethane	Methylene chloride	0.2	<0.2	SC
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4	SC
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2	SC
Styrene	Vinyl benzene	0.2	<0.2	SC
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2	SC
Toluene	Methyl Benzene	0.2	<0.2	SC
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2	SC
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2	SC
Vinyl chloride	Chloroethene	0.2	<0.2	SC
1,2,4-Trichlorobenzene		0.2	<0.2	SC
1,3-Butadiene		0.2	<0.2	SC
1,4-Dioxane		0.2	<0.2	SC
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2	SC
4-Ethyltoluene		0.2	<0.2	SC
Acetone	2-Propanone	0.2	<0.2	SC
Allyl chloride	3-Chloropropene	0.2	<0.2	SC
Bromodichloromethane		0.2	<0.2	SC
Bromoform	Tribromomethane	0.2	<0.2	SC
Carbon disulfide		0.2	<0.2	SC
Cyclohexane		0.2	<0.2	SC
Dibromochloromethane		0.2	<0.2	SC
Ethyl acetate		0.2	<0.2	SC
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2	SC
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2	SC
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2	SC
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2	SC
Methyl tert-butyl ether	MTBE	0.2	<0.2	SC
n-Heptane		0.2	<0.2	SC
n-Hexane		0.2	<0.2	SC
Propene	Propylene	0.2	<0.2	SC
Tetrahydrofuran	THF	0.2	<0.2	SC
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2	SC
Vinyl acetate		0.2	<0.2	SC
Bromoethene	Vinyl bromide	0.2	<0.2	SC
Benzyl chloride	α-Chlorotoluene	0.2	<0.2	SC
Methanol		0.2	<0.2	SC
Ethanol		0.2	<0.2	SC
Acetonitrile		0.2	<0.2	SC
Acrolein	2-Propenal	0.2	<0.2	SC
Acrylonitrile	2-Propenenitrile	0.2	<0.2	SC
tert-Butyl alcohol	TBA	0.2	<0.2	SC
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2	SC
Diisopropyl Ether		0.2	<0.2	SC
Ethyl tert-butyl ether	ETBE	0.2	<0.2	SC
tert-Amyl methyl ether	TAME	0.2	<0.2	SC
Methyl methacrylate		0.2	<0.2	SC
1,1,1,2-Tetrachloroethane		0.2	<0.2	SC
Isopropylbenzene	Cumene	0.2	<0.2	SC
2-Chlorotoluene		0.2	<0.2	SC
n-Propylbenzene		0.2	<0.2	SC
tert-Butylbenzene		0.2	<0.2	SC
sec-Butylbenzene		0.2	<0.2	SC
2-Isopropyltoluene	o-Cymene	0.2	<0.2	SC
n-Butylbenzene		0.2	<0.2	SC
Naphthalene		0.2	<0.2	SC

Canister Verification Report

Canister No: 4992

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	14-Jul-2011
		Valid To (At least):	04-Aug-2011
		Verification File:	110714_13.D
Canister Type:	Entech Silonite - Summa Style	**Stability Check:**	16-Jul-2010
Canister Size:	6L	**Next Check Due:**	15-Jul-2012
Valve Type:	Nupro/Swagelok	**Analyst**	Daniel.Junek

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
1,1,1-Trichloroethane	1,1,1-TCA / Methyl Chloroform	0.2	<0.2	SC
1,1,2,2-Tetrachloroethane		0.2	<0.2	SC
1,1,2-Trichloroethane		0.2	<0.2	SC
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2	SC
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2	SC
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2	SC
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2	SC
1,2-Dibromoethane	EDB / Ethylene Dibromide	0.2	<0.2	SC
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2	SC
1,2-Dichloropropane		0.2	<0.2	SC
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2	SC
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2	SC
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2	SC
Benzene	Cyclohexatriene	0.2	<0.2	SC
Bromomethane	Methyl bromide	0.2	<0.2	SC
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2	SC
Chlorobenzene	Phenyl Chloride	0.2	<0.2	SC
Chloroethane	Ethyl chloride	0.2	<0.2	SC
Chloroform	Trichloromethane	0.2	<0.2	SC
Chloromethane	Methyl chloride	0.2	<0.2	SC
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2	SC
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2	SC
Ethylbenzene		0.2	<0.2	SC
Freon 12	Dichlorodifluoromethane	0.2	<0.2	SC
Freon 11	Trichlorofluoromethane	0.2	<0.2	SC
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2	SC
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2	SC
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2	SC

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
Dichloromethane	Methylene chloride	0.2	<0.2	SC
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4	SC
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2	SC
Styrene	Vinyl benzene	0.2	<0.2	SC
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2	SC
Toluene	Methyl Benzene	0.2	<0.2	SC
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2	SC
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2	SC
Vinyl chloride	Chloroethene	0.2	<0.2	SC
1,2,4-Trichlorobenzene		0.2	<0.2	SC
1,3-Butadiene		0.2	<0.2	SC
1,4-Dioxane		0.2	<0.2	SC
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2	SC
4-Ethyltoluene		0.2	<0.2	SC
Acetone	2-Propanone	0.2	<0.2	SC
Allyl chloride	3-Chloropropene	0.2	<0.2	SC
Bromodichloromethane		0.2	<0.2	SC
Bromoform	Tribromomethane	0.2	<0.2	SC
Carbon disulfide		0.2	<0.2	SC
Cyclohexane		0.2	<0.2	SC
Dibromochloromethane		0.2	<0.2	SC
Ethyl acetate		0.2	<0.2	SC
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2	SC
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2	SC
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2	SC
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2	SC
Methyl tert-butyl ether	MTBE	0.2	<0.2	SC
n-Heptane		0.2	<0.2	SC
n-Hexane		0.2	<0.2	SC
Propene	Propylene	0.2	<0.2	SC
Tetrahydrofuran	THF	0.2	<0.2	SC
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2	SC
Vinyl acetate		0.2	<0.2	SC
Bromoethene	Vinyl bromide	0.2	<0.2	SC
Benzyl chloride	α-Chlorotoluene	0.2	<0.2	SC
Methanol		0.2	<0.2	SC
Ethanol		0.2	<0.2	SC
Acetonitrile		0.2	<0.2	SC
Acrolein	2-Propenal	0.2	<0.2	SC
Acrylonitrile	2-Propenenitrile	0.2	<0.2	SC
tert-Butyl alcohol	TBA	0.2	<0.2	SC
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2	SC
Diisopropyl Ether		0.2	<0.2	SC
Ethyl tert-butyl ether	ETBE	0.2	<0.2	SC
tert-Amyl methyl ether	TAME	0.2	<0.2	SC
Methyl methacrylate		0.2	<0.2	SC
1,1,1,2-Tetrachloroethane		0.2	<0.2	SC
Isopropylbenzene	Cumene	0.2	<0.2	SC
2-Chlorotoluene		0.2	<0.2	SC
n-Propylbenzene		0.2	<0.2	SC
tert-Butylbenzene		0.2	<0.2	SC
sec-Butylbenzene		0.2	<0.2	SC
2-Isopropyltoluene	o-Cymene	0.2	<0.2	SC
n-Butylbenzene		0.2	<0.2	SC
Naphthalene		0.2	<0.2	SC

SC = Supplier Certified

Canister Verification Report

Canister No: 4994

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	12-Jul-2011
		Valid To (At least):	02-Aug-2011
		Verification File:	110712_14.D
Canister Type:	Entech Silonite - Summa Style	**Stability Check:**	16-Jul-2010
Canister Size:	6L	**Next Check Due:**	15-Jul-2012
Valve Type:	Nupro/Swagelok	**Analyst**	Daniel.Junek

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
1,1,1-Trichloroethane	1,1,1-TCA / Methyl Chloroform	0.2	<0.2	SC
1,1,2,2-Tetrachloroethane		0.2	<0.2	SC
1,1,2-Trichloroethane		0.2	<0.2	SC
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2	SC
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2	SC
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2	SC
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2	SC
1,2-Dibromoethane	EDB / Ethylene Dibromide	0.2	<0.2	SC
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2	SC
1,2-Dichloropropane		0.2	<0.2	SC
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2	SC
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2	SC
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2	SC
Benzene	Cyclohexatriene	0.2	<0.2	SC
Bromomethane	Methyl bromide	0.2	<0.2	SC
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2	SC
Chlorobenzene	Phenyl Chloride	0.2	<0.2	SC
Chloroethane	Ethyl chloride	0.2	<0.2	SC
Chloroform	Trichloromethane	0.2	<0.2	SC
Chloromethane	Methyl chloride	0.2	<0.2	SC
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2	SC
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2	SC
Ethylbenzene		0.2	<0.2	SC
Freon 12	Dichlorodifluoromethane	0.2	<0.2	SC
Freon 11	Trichlorofluoromethane	0.2	<0.2	SC
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2	SC
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2	SC
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2	SC

Target Compound	Alt. Name	Verified Target ppbv	Result ppbv	Stability
Dichloromethane	Methylene chloride	0.2	<0.2	SC
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4	SC
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2	SC
Styrene	Vinyl benzene	0.2	<0.2	SC
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2	SC
Toluene	Methyl Benzene	0.2	<0.2	SC
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2	SC
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2	SC
Vinyl chloride	Chloroethene	0.2	<0.2	SC
1,2,4-Trichlorobenzene		0.2	<0.2	SC
1,3-Butadiene		0.2	<0.2	SC
1,4-Dioxane		0.2	<0.2	SC
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2	SC
4-Ethyltoluene		0.2	<0.2	SC
Acetone	2-Propanone	0.2	<0.2	SC
Allyl chloride	3-Chloropropene	0.2	<0.2	SC
Bromodichloromethane		0.2	<0.2	SC
Bromoform	Tribromomethane	0.2	<0.2	SC
Carbon disulfide		0.2	<0.2	SC
Cyclohexane		0.2	<0.2	SC
Dibromochloromethane		0.2	<0.2	SC
Ethyl acetate		0.2	<0.2	SC
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2	SC
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2	SC
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2	SC
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2	SC
Methyl tert-butyl ether	MTBE	0.2	<0.2	SC
n-Heptane		0.2	<0.2	SC
n-Hexane		0.2	<0.2	SC
Propene	Propylene	0.2	<0.2	SC
Tetrahydrofuran	THF	0.2	<0.2	SC
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2	SC
Vinyl acetate		0.2	<0.2	SC
Bromoethene	Vinyl bromide	0.2	<0.2	SC
Benzyl chloride	α-Chlorotoluene	0.2	<0.2	SC
Methanol		0.2	<0.2	SC
Ethanol		0.2	<0.2	SC
Acetonitrile		0.2	<0.2	SC
Acrolein	2-Propenal	0.2	<0.2	SC
Acrylonitrile	2-Propenenitrile	0.2	<0.2	SC
tert-Butyl alcohol	TBA	0.2	<0.2	SC
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2	SC
Diisopropyl Ether		0.2	<0.2	SC
Ethyl tert-butyl ether	ETBE	0.2	<0.2	SC
tert-Amyl methyl ether	TAME	0.2	<0.2	SC
Methyl methacrylate		0.2	<0.2	SC
1,1,1,2-Tetrachloroethane		0.2	<0.2	SC
Isopropylbenzene	Cumene	0.2	<0.2	SC
2-Chlorotoluene		0.2	<0.2	SC
n-Propylbenzene		0.2	<0.2	SC
tert-Butylbenzene		0.2	<0.2	SC
sec-Butylbenzene		0.2	<0.2	SC
2-Isopropyltoluene	o-Cymene	0.2	<0.2	SC
n-Butylbenzene		0.2	<0.2	SC
Naphthalene		0.2	<0.2	SC

SC = Supplier Certified

Canister Verification Report

Canister No: 4737

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	19-Jan-2012
		Valid To (At least):	09-Feb-2012
		Verification File:	120119_06.D
Canister Type:	Supplier	**Stability Check:**	Supplier
Canister Size:	Entech Silonite - Summa Style	**Next Check Due:**	22-Jun-2011
Valve Type:	Nupro/Swagelok	**Analyst**	Lewis Murray

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
Benzene	Cyclohexatriene	0.2	<0.2
Bromomethane	Methyl bromide	0.2	<0.2
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2
Chlorobenzene	Phenyl chloride	0.2	<0.2
Chloroethane	Ethyl chloride	0.2	<0.2
Chloroform	Trichloromethane	0.2	<0.2
Chloromethane	Methyl chloride	0.2	<0.2
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2
Ethylbenzene	Phenyl ethane	0.2	<0.2
Freon 12	Dichlorodifluoromethane	0.2	<0.2
Freon 11	Trichlorofluoromethane	0.2	<0.2
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
Dichloromethane	Methylene chloride	0.2	<0.2
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2
Styrene	Vinyl benzene	0.2	<0.2
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2
Toluene	Methyl Benzene	0.2	<0.2
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2
Vinyl chloride	Chloroethene	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Allyl chloride	3-Chloropropene	0.2	<0.2
Bromodichloromethane	Dichlorobromomethane	0.2	<0.2
Bromoform	Tribromomethane	0.2	<0.2
Carbon disulfide	CS2	0.2	<0.2
Cyclohexane		0.2	<0.2
Dibromochloromethane	Chlorodibromoethane	0.2	<0.2
Ethyl acetate	Acetic ester	0.2	<0.2
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2
Methyl tert-butyl ether	MTBE	0.2	<0.2
n-Heptane		0.2	<0.2
n-Hexane		0.2	<0.2
Propene	Propylene	0.2	<0.2
Tetrahydrofuran	THF	0.2	<0.2
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2
Vinyl acetate	Acetic acid vinyl ester	0.2	<0.2
Bromoethene	Vinyl bromide	0.2	<0.2
Benzyl chloride	α-Chlorotoluene	0.2	<0.2
Methanol	Methyl alcohol	0.2	<0.2
Ethanol	Ethyl alcohol	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2
tert-Butyl alcohol	TBA	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
Diisopropyl Ether	DIPE	0.2	<0.2
Ethyl tert-butyl ether	ETBE	0.2	<0.2
tert-Amyl methyl ether	TAME	0.2	<0.2
Methyl methacrylate	MMA	0.2	<0.2
1,1,1,2-Tetrachloroethane	R-130a / Acetylene trichloride	0.2	<0.2
Isopropylbenzene	Cumene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
n-Propylbenzene	Phenyl propane	0.2	<0.2
tert-Butylbenzene	1,1-Dimethylethylbenzene	0.2	<0.2
sec-Butylbenzene	1-Methylpropylbenzene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
n-Butylbenzene	Phenyl butane	0.2	<0.2
Naphthalene		0.2	<0.2

Canister Verification Report

Canister No: 4740

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	18-Jan-2012
		Valid To (At least):	08-Feb-2012
		Verification File:	120118_06.D
Canister Type:	EP101-15X	**Stability Check:**	EP101-15X
Canister Size:	Entech Silonite - Summa Style	**Next Check Due:**	09-Aug-2012
Valve Type:	Nupro/Swagelok	**Analyst**	Lewis Murray

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
Benzene	Cyclohexatriene	0.2	<0.2
Bromomethane	Methyl bromide	0.2	<0.2
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2
Chlorobenzene	Phenyl chloride	0.2	<0.2
Chloroethane	Ethyl chloride	0.2	<0.2
Chloroform	Trichloromethane	0.2	<0.2
Chloromethane	Methyl chloride	0.2	<0.2
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2
Ethylbenzene	Phenyl ethane	0.2	<0.2
Freon 12	Dichlorodifluoromethane	0.2	<0.2
Freon 11	Trichlorofluoromethane	0.2	<0.2
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
Dichloromethane	Methylene chloride	0.2	<0.2
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2
Styrene	Vinyl benzene	0.2	<0.2
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2
Toluene	Methyl Benzene	0.2	<0.2
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2
Vinyl chloride	Chloroethene	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Allyl chloride	3-Chloropropene	0.2	<0.2
Bromodichloromethane	Dichlorobromomethane	0.2	<0.2
Bromoform	Tribromomethane	0.2	<0.2
Carbon disulfide	CS2	0.2	<0.2
Cyclohexane		0.2	<0.2
Dibromochloromethane	Chlorodibromoethane	0.2	<0.2
Ethyl acetate	Acetic ester	0.2	<0.2
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2
Methyl tert-butyl ether	MTBE	0.2	<0.2
n-Heptane		0.2	<0.2
n-Hexane		0.2	<0.2
Propene	Propylene	0.2	<0.2
Tetrahydrofuran	THF	0.2	<0.2
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2
Vinyl acetate	Acetic acid vinyl ester	0.2	<0.2
Bromoethene	Vinyl bromide	0.2	<0.2
Benzyl chloride	α-Chlorotoluene	0.2	<0.2
Methanol	Methyl alcohol	0.2	<0.2
Ethanol	Ethyl alcohol	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2
tert-Butyl alcohol	TBA	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
Diisopropyl Ether	DIPE	0.2	<0.2
Ethyl tert-butyl ether	ETBE	0.2	<0.2
tert-Amyl methyl ether	TAME	0.2	<0.2
Methyl methacrylate	MMA	0.2	<0.2
1,1,1,2-Tetrachloroethane	R-130a / Acetylene trichloride	0.2	<0.2
Isopropylbenzene	Cumene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
n-Propylbenzene	Phenyl propane	0.2	<0.2
tert-Butylbenzene	1,1-Dimethylethylbenzene	0.2	<0.2
sec-Butylbenzene	1-Methylpropylbenzene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
n-Butylbenzene	Phenyl butane	0.2	<0.2
Naphthalene		0.2	<0.2

Canister Verification Report

Canister No: 4741

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	20-Jan-2012
		Valid To (At least):	10-Feb-2012
		Verification File:	120120_05.D
Canister Type:	Supplier	**Stability Check:**	Supplier
Canister Size:	Entech Silonite - Summa Style	**Next Check Due:**	22-Jun-2011
Valve Type:	Nupro/Swagelok	**Analyst**	Lewis Murray

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
Benzene	Cyclohexatriene	0.2	<0.2
Bromomethane	Methyl bromide	0.2	<0.2
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2
Chlorobenzene	Phenyl chloride	0.2	<0.2
Chloroethane	Ethyl chloride	0.2	<0.2
Chloroform	Trichloromethane	0.2	<0.2
Chloromethane	Methyl chloride	0.2	<0.2
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2
Ethylbenzene	Phenyl ethane	0.2	<0.2
Freon 12	Dichlorodifluoromethane	0.2	<0.2
Freon 11	Trichlorofluoromethane	0.2	<0.2
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
Dichloromethane	Methylene chloride	0.2	<0.2
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2
Styrene	Vinyl benzene	0.2	<0.2
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2
Toluene	Methyl Benzene	0.2	<0.2
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2
Vinyl chloride	Chloroethene	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Allyl chloride	3-Chloropropene	0.2	<0.2
Bromodichloromethane	Dichlorobromomethane	0.2	<0.2
Bromoform	Tribromomethane	0.2	<0.2
Carbon disulfide	CS2	0.2	<0.2
Cyclohexane		0.2	<0.2
Dibromochloromethane	Chlorodibromoethane	0.2	<0.2
Ethyl acetate	Acetic ester	0.2	<0.2
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2
Methyl tert-butyl ether	MTBE	0.2	<0.2
n-Heptane		0.2	<0.2
n-Hexane		0.2	<0.2
Propene	Propylene	0.2	<0.2
Tetrahydrofuran	THF	0.2	<0.2
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2
Vinyl acetate	Acetic acid vinyl ester	0.2	<0.2
Bromoethene	Vinyl bromide	0.2	<0.2
Benzyl chloride	α-Chlorotoluene	0.2	<0.2
Methanol	Methyl alcohol	0.2	<0.2
Ethanol	Ethyl alcohol	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2
tert-Butyl alcohol	TBA	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
Diisopropyl Ether	DIPE	0.2	<0.2
Ethyl tert-butyl ether	ETBE	0.2	<0.2
tert-Amyl methyl ether	TAME	0.2	<0.2
Methyl methacrylate	MMA	0.2	<0.2
1,1,1,2-Tetrachloroethane	R-130a / Acetylene trichloride	0.2	<0.2
Isopropylbenzene	Cumene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
n-Propylbenzene	Phenyl propane	0.2	<0.2
tert-Butylbenzene	1,1-Dimethylethylbenzene	0.2	<0.2
sec-Butylbenzene	1-Methylpropylbenzene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
n-Butylbenzene	Phenyl butane	0.2	<0.2
Naphthalene		0.2	<0.2

Canister Verification Report

Canister No: 4747

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	19-Jan-2012
		Valid To (At least):	09-Feb-2012
		Verification File:	120119_14.D
Canister Type:	Supplier	**Stability Check:**	Supplier
Canister Size:	Entech Silonite - Summa Style	**Next Check Due:**	07-Aug-2011
Valve Type:	Nupro/Swagelok	**Analyst**	Lewis Murray

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
Benzene	Cyclohexatriene	0.2	<0.2
Bromomethane	Methyl bromide	0.2	<0.2
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2
Chlorobenzene	Phenyl chloride	0.2	<0.2
Chloroethane	Ethyl chloride	0.2	<0.2
Chloroform	Trichloromethane	0.2	<0.2
Chloromethane	Methyl chloride	0.2	<0.2
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2
Ethylbenzene	Phenyl ethane	0.2	<0.2
Freon 12	Dichlorodifluoromethane	0.2	<0.2
Freon 11	Trichlorofluoromethane	0.2	<0.2
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
Dichloromethane	Methylene chloride	0.2	<0.2
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2
Styrene	Vinyl benzene	0.2	<0.2
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2
Toluene	Methyl Benzene	0.2	<0.2
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2
Vinyl chloride	Chloroethene	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Allyl chloride	3-Chloropropene	0.2	<0.2
Bromodichloromethane	Dichlorobromomethane	0.2	<0.2
Bromoform	Tribromomethane	0.2	<0.2
Carbon disulfide	CS2	0.2	<0.2
Cyclohexane		0.2	<0.2
Dibromochloromethane	Chlorodibromoethane	0.2	<0.2
Ethyl acetate	Acetic ester	0.2	<0.2
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2
Methyl tert-butyl ether	MTBE	0.2	<0.2
n-Heptane		0.2	<0.2
n-Hexane		0.2	<0.2
Propene	Propylene	0.2	<0.2
Tetrahydrofuran	THF	0.2	<0.2
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2
Vinyl acetate	Acetic acid vinyl ester	0.2	<0.2
Bromoethene	Vinyl bromide	0.2	<0.2
Benzyl chloride	α-Chlorotoluene	0.2	<0.2
Methanol	Methyl alcohol	0.2	<0.2
Ethanol	Ethyl alcohol	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2
tert-Butyl alcohol	TBA	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
Diisopropyl Ether	DIPE	0.2	<0.2
Ethyl tert-butyl ether	ETBE	0.2	<0.2
tert-Amyl methyl ether	TAME	0.2	<0.2
Methyl methacrylate	MMA	0.2	<0.2
1,1,1,2-Tetrachloroethane	R-130a / Acetylene trichloride	0.2	<0.2
Isopropylbenzene	Cumene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
n-Propylbenzene	Phenyl propane	0.2	<0.2
tert-Butylbenzene	1,1-Dimethylethylbenzene	0.2	<0.2
sec-Butylbenzene	1-Methylpropylbenzene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
n-Butylbenzene	Phenyl butane	0.2	<0.2
Naphthalene		0.2	<0.2

Canister Verification Report

Canister No: 4760

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	18-Jan-2012
		Valid To (At least):	08-Feb-2012
		Verification File:	120118_08.D
Canister Type:	Supplier	**Stability Check:**	Supplier
Canister Size:	Entech Silonite - Summa Style	**Next Check Due:**	07-Aug-2011
Valve Type:	Nupro/Swagelok	**Analyst**	Lewis Murray

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
Benzene	Cyclohexatriene	0.2	<0.2
Bromomethane	Methyl bromide	0.2	<0.2
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2
Chlorobenzene	Phenyl chloride	0.2	<0.2
Chloroethane	Ethyl chloride	0.2	<0.2
Chloroform	Trichloromethane	0.2	<0.2
Chloromethane	Methyl chloride	0.2	<0.2
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2
Ethylbenzene	Phenyl ethane	0.2	<0.2
Freon 12	Dichlorodifluoromethane	0.2	<0.2
Freon 11	Trichlorofluoromethane	0.2	<0.2
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
Dichloromethane	Methylene chloride	0.2	<0.2
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2
Styrene	Vinyl benzene	0.2	<0.2
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2
Toluene	Methyl Benzene	0.2	<0.2
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2
Vinyl chloride	Chloroethene	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Allyl chloride	3-Chloropropene	0.2	<0.2
Bromodichloromethane	Dichlorobromomethane	0.2	<0.2
Bromoform	Tribromomethane	0.2	<0.2
Carbon disulfide	CS2	0.2	<0.2
Cyclohexane		0.2	<0.2
Dibromochloromethane	Chlorodibromoethane	0.2	<0.2
Ethyl acetate	Acetic ester	0.2	<0.2
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2
Methyl tert-butyl ether	MTBE	0.2	<0.2
n-Heptane		0.2	<0.2
n-Hexane		0.2	<0.2
Propene	Propylene	0.2	<0.2
Tetrahydrofuran	THF	0.2	<0.2
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2
Vinyl acetate	Acetic acid vinyl ester	0.2	<0.2
Bromoethene	Vinyl bromide	0.2	<0.2
Benzyl chloride	α-Chlorotoluene	0.2	<0.2
Methanol	Methyl alcohol	0.2	<0.2
Ethanol	Ethyl alcohol	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2
tert-Butyl alcohol	TBA	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
Diisopropyl Ether	DIPE	0.2	<0.2
Ethyl tert-butyl ether	ETBE	0.2	<0.2
tert-Amyl methyl ether	TAME	0.2	<0.2
Methyl methacrylate	MMA	0.2	<0.2
1,1,1,2-Tetrachloroethane	R-130a / Acetylene trichloride	0.2	<0.2
Isopropylbenzene	Cumene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
n-Propylbenzene	Phenyl propane	0.2	<0.2
tert-Butylbenzene	1,1-Dimethylethylbenzene	0.2	<0.2
sec-Butylbenzene	1-Methylpropylbenzene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
n-Butylbenzene	Phenyl butane	0.2	<0.2
Naphthalene		0.2	<0.2

Canister Verification Report

Canister No: 4763

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	19-Jan-2012
		Valid To (At least):	09-Feb-2012
		Verification File:	120119_12.D
Canister Type:	Supplier	**Stability Check:**	Supplier
Canister Size:	Entech Silonite - Summa Style	**Next Check Due:**	07-Aug-2011
Valve Type:	Nupro/Swagelok	**Analyst**	Lewis Murray

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
Benzene	Cyclohexatriene	0.2	<0.2
Bromomethane	Methyl bromide	0.2	<0.2
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2
Chlorobenzene	Phenyl chloride	0.2	<0.2
Chloroethane	Ethyl chloride	0.2	<0.2
Chloroform	Trichloromethane	0.2	<0.2
Chloromethane	Methyl chloride	0.2	<0.2
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2
Ethylbenzene	Phenyl ethane	0.2	<0.2
Freon 12	Dichlorodifluoromethane	0.2	<0.2
Freon 11	Trichlorofluoromethane	0.2	<0.2
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
Dichloromethane	Methylene chloride	0.2	<0.2
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2
Styrene	Vinyl benzene	0.2	<0.2
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2
Toluene	Methyl Benzene	0.2	<0.2
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2
Vinyl chloride	Chloroethene	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Allyl chloride	3-Chloropropene	0.2	<0.2
Bromodichloromethane	Dichlorobromomethane	0.2	<0.2
Bromoform	Tribromomethane	0.2	<0.2
Carbon disulfide	CS2	0.2	<0.2
Cyclohexane		0.2	<0.2
Dibromochloromethane	Chlorodibromoethane	0.2	<0.2
Ethyl acetate	Acetic ester	0.2	<0.2
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2
Methyl tert-butyl ether	MTBE	0.2	<0.2
n-Heptane		0.2	<0.2
n-Hexane		0.2	<0.2
Propene	Propylene	0.2	<0.2
Tetrahydrofuran	THF	0.2	<0.2
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2
Vinyl acetate	Acetic acid vinyl ester	0.2	<0.2
Bromoethene	Vinyl bromide	0.2	<0.2
Benzyl chloride	α-Chlorotoluene	0.2	<0.2
Methanol	Methyl alcohol	0.2	<0.2
Ethanol	Ethyl alcohol	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2
tert-Butyl alcohol	TBA	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
Diisopropyl Ether	DIPE	0.2	<0.2
Ethyl tert-butyl ether	ETBE	0.2	<0.2
tert-Amyl methyl ether	TAME	0.2	<0.2
Methyl methacrylate	MMA	0.2	<0.2
1,1,1,2-Tetrachloroethane	R-130a / Acetylene trichloride	0.2	<0.2
Isopropylbenzene	Cumene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
n-Propylbenzene	Phenyl propane	0.2	<0.2
tert-Butylbenzene	1,1-Dimethylethylbenzene	0.2	<0.2
sec-Butylbenzene	1-Methylpropylbenzene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
n-Butylbenzene	Phenyl butane	0.2	<0.2
Naphthalene		0.2	<0.2

Canister Verification Report

Canister No: 4768

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	18-Jan-2012
		Valid To (At least):	08-Feb-2012
		Verification File:	120118_10.D
Canister Type:	Supplier	**Stability Check:**	Supplier
Canister Size:	Entech Silonite - Summa Style	**Next Check Due:**	12-Aug-2011
Valve Type:	Nupro/Swagelok	**Analyst**	Lewis Murray

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
Benzene	Cyclohexatriene	0.2	<0.2
Bromomethane	Methyl bromide	0.2	<0.2
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2
Chlorobenzene	Phenyl chloride	0.2	<0.2
Chloroethane	Ethyl chloride	0.2	<0.2
Chloroform	Trichloromethane	0.2	<0.2
Chloromethane	Methyl chloride	0.2	<0.2
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2
Ethylbenzene	Phenyl ethane	0.2	<0.2
Freon 12	Dichlorodifluoromethane	0.2	<0.2
Freon 11	Trichlorofluoromethane	0.2	<0.2
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
Dichloromethane	Methylene chloride	0.2	<0.2
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2
Styrene	Vinyl benzene	0.2	<0.2
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2
Toluene	Methyl Benzene	0.2	<0.2
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2
Vinyl chloride	Chloroethene	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Allyl chloride	3-Chloropropene	0.2	<0.2
Bromodichloromethane	Dichlorobromomethane	0.2	<0.2
Bromoform	Tribromomethane	0.2	<0.2
Carbon disulfide	CS2	0.2	<0.2
Cyclohexane		0.2	<0.2
Dibromochloromethane	Chlorodibromoethane	0.2	<0.2
Ethyl acetate	Acetic ester	0.2	<0.2
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2
Methyl tert-butyl ether	MTBE	0.2	<0.2
n-Heptane		0.2	<0.2
n-Hexane		0.2	<0.2
Propene	Propylene	0.2	<0.2
Tetrahydrofuran	THF	0.2	<0.2
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2
Vinyl acetate	Acetic acid vinyl ester	0.2	<0.2
Bromoethene	Vinyl bromide	0.2	<0.2
Benzyl chloride	α-Chlorotoluene	0.2	<0.2
Methanol	Methyl alcohol	0.2	<0.2
Ethanol	Ethyl alcohol	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2
tert-Butyl alcohol	TBA	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
Diisopropyl Ether	DIPE	0.2	<0.2
Ethyl tert-butyl ether	ETBE	0.2	<0.2
tert-Amyl methyl ether	TAME	0.2	<0.2
Methyl methacrylate	MMA	0.2	<0.2
1,1,1,2-Tetrachloroethane	R-130a / Acetylene trichloride	0.2	<0.2
Isopropylbenzene	Cumene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
n-Propylbenzene	Phenyl propane	0.2	<0.2
tert-Butylbenzene	1,1-Dimethylethylbenzene	0.2	<0.2
sec-Butylbenzene	1-Methylpropylbenzene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
n-Butylbenzene	Phenyl butane	0.2	<0.2
Naphthalene		0.2	<0.2

Canister Verification Report

Canister No: 4770

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	19-Jan-2012
		Valid To (At least):	09-Feb-2012
		Verification File:	120119_05.D
Canister Type:	Supplier	**Stability Check:**	Supplier
Canister Size:	Entech Silonite - Summa Style	**Next Check Due:**	12-Aug-2011
Valve Type:	Nupro/Swagelok	**Analyst**	Lewis Murray

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
Benzene	Cyclohexatriene	0.2	<0.2
Bromomethane	Methyl bromide	0.2	<0.2
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2
Chlorobenzene	Phenyl chloride	0.2	<0.2
Chloroethane	Ethyl chloride	0.2	<0.2
Chloroform	Trichloromethane	0.2	<0.2
Chloromethane	Methyl chloride	0.2	<0.2
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2
Ethylbenzene	Phenyl ethane	0.2	<0.2
Freon 12	Dichlorodifluoromethane	0.2	<0.2
Freon 11	Trichlorofluoromethane	0.2	<0.2
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
Dichloromethane	Methylene chloride	0.2	<0.2
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2
Styrene	Vinyl benzene	0.2	<0.2
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2
Toluene	Methyl Benzene	0.2	<0.2
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2
Vinyl chloride	Chloroethene	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Allyl chloride	3-Chloropropene	0.2	<0.2
Bromodichloromethane	Dichlorobromomethane	0.2	<0.2
Bromoform	Tribromomethane	0.2	<0.2
Carbon disulfide	CS2	0.2	<0.2
Cyclohexane		0.2	<0.2
Dibromochloromethane	Chlorodibromoethane	0.2	<0.2
Ethyl acetate	Acetic ester	0.2	<0.2
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2
Methyl tert-butyl ether	MTBE	0.2	<0.2
n-Heptane		0.2	<0.2
n-Hexane		0.2	<0.2
Propene	Propylene	0.2	<0.2
Tetrahydrofuran	THF	0.2	<0.2
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2
Vinyl acetate	Acetic acid vinyl ester	0.2	<0.2
Bromoethene	Vinyl bromide	0.2	<0.2
Benzyl chloride	α-Chlorotoluene	0.2	<0.2
Methanol	Methyl alcohol	0.2	<0.2
Ethanol	Ethyl alcohol	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2
tert-Butyl alcohol	TBA	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
Diisopropyl Ether	DIPE	0.2	<0.2
Ethyl tert-butyl ether	ETBE	0.2	<0.2
tert-Amyl methyl ether	TAME	0.2	<0.2
Methyl methacrylate	MMA	0.2	<0.2
1,1,1,2-Tetrachloroethane	R-130a / Acetylene trichloride	0.2	<0.2
Isopropylbenzene	Cumene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
n-Propylbenzene	Phenyl propane	0.2	<0.2
tert-Butylbenzene	1,1-Dimethylethylbenzene	0.2	<0.2
sec-Butylbenzene	1-Methylpropylbenzene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
n-Butylbenzene	Phenyl butane	0.2	<0.2
Naphthalene		0.2	<0.2

Canister Verification Report

Canister No: 4775

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	18-Jan-2012
		Valid To (At least):	08-Feb-2012
		Verification File:	120118_09.D
Canister Type:	Supplier	**Stability Check:**	Supplier
Canister Size:	Entech Silonite - Summa Style	**Next Check Due:**	12-Aug-2011
Valve Type:	Nupro/Swagelok	**Analyst**	Lewis Murray

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
Benzene	Cyclohexatriene	0.2	<0.2
Bromomethane	Methyl bromide	0.2	<0.2
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2
Chlorobenzene	Phenyl chloride	0.2	<0.2
Chloroethane	Ethyl chloride	0.2	<0.2
Chloroform	Trichloromethane	0.2	<0.2
Chloromethane	Methyl chloride	0.2	<0.2
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2
Ethylbenzene	Phenyl ethane	0.2	<0.2
Freon 12	Dichlorodifluoromethane	0.2	<0.2
Freon 11	Trichlorofluoromethane	0.2	<0.2
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
Dichloromethane	Methylene chloride	0.2	<0.2
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2
Styrene	Vinyl benzene	0.2	<0.2
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2
Toluene	Methyl Benzene	0.2	<0.2
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2
Vinyl chloride	Chloroethene	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Allyl chloride	3-Chloropropene	0.2	<0.2
Bromodichloromethane	Dichlorobromomethane	0.2	<0.2
Bromoform	Tribromomethane	0.2	<0.2
Carbon disulfide	CS2	0.2	<0.2
Cyclohexane		0.2	<0.2
Dibromochloromethane	Chlorodibromoethane	0.2	<0.2
Ethyl acetate	Acetic ester	0.2	<0.2
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2
Methyl tert-butyl ether	MTBE	0.2	<0.2
n-Heptane		0.2	<0.2
n-Hexane		0.2	<0.2
Propene	Propylene	0.2	<0.2
Tetrahydrofuran	THF	0.2	<0.2
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2
Vinyl acetate	Acetic acid vinyl ester	0.2	<0.2
Bromoethene	Vinyl bromide	0.2	<0.2
Benzyl chloride	α-Chlorotoluene	0.2	<0.2
Methanol	Methyl alcohol	0.2	<0.2
Ethanol	Ethyl alcohol	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2
tert-Butyl alcohol	TBA	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
Diisopropyl Ether	DIPE	0.2	<0.2
Ethyl tert-butyl ether	ETBE	0.2	<0.2
tert-Amyl methyl ether	TAME	0.2	<0.2
Methyl methacrylate	MMA	0.2	<0.2
1,1,1,2-Tetrachloroethane	R-130a / Acetylene trichloride	0.2	<0.2
Isopropylbenzene	Cumene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
n-Propylbenzene	Phenyl propane	0.2	<0.2
tert-Butylbenzene	1,1-Dimethylethylbenzene	0.2	<0.2
sec-Butylbenzene	1-Methylpropylbenzene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
n-Butylbenzene	Phenyl butane	0.2	<0.2
Naphthalene		0.2	<0.2

Canister Verification Report

Canister No: 4777

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	18-Jan-2012
		Valid To (At least):	08-Feb-2012
		Verification File:	120118_05.D
Canister Type:	Supplier	**Stability Check:**	Supplier
Canister Size:	Entech Silonite - Summa Style	**Next Check Due:**	12-Aug-2011
Valve Type:	Nupro/Swagelok	**Analyst**	Lewis Murray

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
Benzene	Cyclohexatriene	0.2	<0.2
Bromomethane	Methyl bromide	0.2	<0.2
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2
Chlorobenzene	Phenyl chloride	0.2	<0.2
Chloroethane	Ethyl chloride	0.2	<0.2
Chloroform	Trichloromethane	0.2	<0.2
Chloromethane	Methyl chloride	0.2	<0.2
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2
Ethylbenzene	Phenyl ethane	0.2	<0.2
Freon 12	Dichlorodifluoromethane	0.2	<0.2
Freon 11	Trichlorofluoromethane	0.2	<0.2
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
Dichloromethane	Methylene chloride	0.2	<0.2
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2
Styrene	Vinyl benzene	0.2	<0.2
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2
Toluene	Methyl Benzene	0.2	<0.2
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2
Vinyl chloride	Chloroethene	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Allyl chloride	3-Chloropropene	0.2	<0.2
Bromodichloromethane	Dichlorobromomethane	0.2	<0.2
Bromoform	Tribromomethane	0.2	<0.2
Carbon disulfide	CS2	0.2	<0.2
Cyclohexane		0.2	<0.2
Dibromochloromethane	Chlorodibromoethane	0.2	<0.2
Ethyl acetate	Acetic ester	0.2	<0.2
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2
Methyl tert-butyl ether	MTBE	0.2	<0.2
n-Heptane		0.2	<0.2
n-Hexane		0.2	<0.2
Propene	Propylene	0.2	<0.2
Tetrahydrofuran	THF	0.2	<0.2
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2
Vinyl acetate	Acetic acid vinyl ester	0.2	<0.2
Bromoethene	Vinyl bromide	0.2	<0.2
Benzyl chloride	α-Chlorotoluene	0.2	<0.2
Methanol	Methyl alcohol	0.2	<0.2
Ethanol	Ethyl alcohol	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2
tert-Butyl alcohol	TBA	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
Diisopropyl Ether	DIPE	0.2	<0.2
Ethyl tert-butyl ether	ETBE	0.2	<0.2
tert-Amyl methyl ether	TAME	0.2	<0.2
Methyl methacrylate	MMA	0.2	<0.2
1,1,1,2-Tetrachloroethane	R-130a / Acetylene trichloride	0.2	<0.2
Isopropylbenzene	Cumene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
n-Propylbenzene	Phenyl propane	0.2	<0.2
tert-Butylbenzene	1,1-Dimethylethylbenzene	0.2	<0.2
sec-Butylbenzene	1-Methylpropylbenzene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
n-Butylbenzene	Phenyl butane	0.2	<0.2
Naphthalene		0.2	<0.2

Canister Verification Report

Canister No: 4782

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	19-Jan-2012
		Valid To (At least):	09-Feb-2012
		Verification File:	120119_13.D
Canister Type:	EP101-15X	**Stability Check:**	EP101-15X
Canister Size:	Entech Silonite - Summa Style	**Next Check Due:**	28-Jun-2013
Valve Type:	Nupro/Swagelok	**Analyst**	Lewis Murray

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
Benzene	Cyclohexatriene	0.2	<0.2
Bromomethane	Methyl bromide	0.2	<0.2
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2
Chlorobenzene	Phenyl chloride	0.2	<0.2
Chloroethane	Ethyl chloride	0.2	<0.2
Chloroform	Trichloromethane	0.2	<0.2
Chloromethane	Methyl chloride	0.2	<0.2
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2
Ethylbenzene	Phenyl ethane	0.2	<0.2
Freon 12	Dichlorodifluoromethane	0.2	<0.2
Freon 11	Trichlorofluoromethane	0.2	<0.2
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
Dichloromethane	Methylene chloride	0.2	<0.2
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2
Styrene	Vinyl benzene	0.2	<0.2
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2
Toluene	Methyl Benzene	0.2	<0.2
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2
Vinyl chloride	Chloroethene	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Allyl chloride	3-Chloropropene	0.2	<0.2
Bromodichloromethane	Dichlorobromomethane	0.2	<0.2
Bromoform	Tribromomethane	0.2	<0.2
Carbon disulfide	CS2	0.2	<0.2
Cyclohexane		0.2	<0.2
Dibromochloromethane	Chlorodibromoethane	0.2	<0.2
Ethyl acetate	Acetic ester	0.2	<0.2
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2
Methyl tert-butyl ether	MTBE	0.2	<0.2
n-Heptane		0.2	<0.2
n-Hexane		0.2	<0.2
Propene	Propylene	0.2	<0.2
Tetrahydrofuran	THF	0.2	<0.2
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2
Vinyl acetate	Acetic acid vinyl ester	0.2	<0.2
Bromoethene	Vinyl bromide	0.2	<0.2
Benzyl chloride	α-Chlorotoluene	0.2	<0.2
Methanol	Methyl alcohol	0.2	<0.2
Ethanol	Ethyl alcohol	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2
tert-Butyl alcohol	TBA	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
Diisopropyl Ether	DIPE	0.2	<0.2
Ethyl tert-butyl ether	ETBE	0.2	<0.2
tert-Amyl methyl ether	TAME	0.2	<0.2
Methyl methacrylate	MMA	0.2	<0.2
1,1,1,2-Tetrachloroethane	R-130a / Acetylene trichloride	0.2	<0.2
Isopropylbenzene	Cumene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
n-Propylbenzene	Phenyl propane	0.2	<0.2
tert-Butylbenzene	1,1-Dimethylethylbenzene	0.2	<0.2
sec-Butylbenzene	1-Methylpropylbenzene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
n-Butylbenzene	Phenyl butane	0.2	<0.2
Naphthalene		0.2	<0.2

SC = Supplier Certified

Canister Verification Report

Canister No: 4973

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	19-Jan-2012
		Valid To (At least):	09-Feb-2012
		Verification File:	120119_09.D
Canister Type:	Supplier	**Stability Check:**	Supplier
Canister Size:	Entech Silonite - Summa Style	**Next Check Due:**	15-Jul-2012
Valve Type:	Nupro/Swagelok	**Analyst**	Lewis Murray

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
Benzene	Cyclohexatriene	0.2	<0.2
Bromomethane	Methyl bromide	0.2	<0.2
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2
Chlorobenzene	Phenyl chloride	0.2	<0.2
Chloroethane	Ethyl chloride	0.2	<0.2
Chloroform	Trichloromethane	0.2	<0.2
Chloromethane	Methyl chloride	0.2	<0.2
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2
Ethylbenzene	Phenyl ethane	0.2	<0.2
Freon 12	Dichlorodifluoromethane	0.2	<0.2
Freon 11	Trichlorofluoromethane	0.2	<0.2
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
Dichloromethane	Methylene chloride	0.2	<0.2
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2
Styrene	Vinyl benzene	0.2	<0.2
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2
Toluene	Methyl Benzene	0.2	<0.2
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2
Vinyl chloride	Chloroethene	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Allyl chloride	3-Chloropropene	0.2	<0.2
Bromodichloromethane	Dichlorobromomethane	0.2	<0.2
Bromoform	Tribromomethane	0.2	<0.2
Carbon disulfide	CS2	0.2	<0.2
Cyclohexane		0.2	<0.2
Dibromochloromethane	Chlorodibromoethane	0.2	<0.2
Ethyl acetate	Acetic ester	0.2	<0.2
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2
Methyl tert-butyl ether	MTBE	0.2	<0.2
n-Heptane		0.2	<0.2
n-Hexane		0.2	<0.2
Propene	Propylene	0.2	<0.2
Tetrahydrofuran	THF	0.2	<0.2
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2
Vinyl acetate	Acetic acid vinyl ester	0.2	<0.2
Bromoethene	Vinyl bromide	0.2	<0.2
Benzyl chloride	α-Chlorotoluene	0.2	<0.2
Methanol	Methyl alcohol	0.2	<0.2
Ethanol	Ethyl alcohol	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2
tert-Butyl alcohol	TBA	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
Diisopropyl Ether	DIPE	0.2	<0.2
Ethyl tert-butyl ether	ETBE	0.2	<0.2
tert-Amyl methyl ether	TAME	0.2	<0.2
Methyl methacrylate	MMA	0.2	<0.2
1,1,1,2-Tetrachloroethane	R-130a / Acetylene trichloride	0.2	<0.2
Isopropylbenzene	Cumene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
n-Propylbenzene	Phenyl propane	0.2	<0.2
tert-Butylbenzene	1,1-Dimethylethylbenzene	0.2	<0.2
sec-Butylbenzene	1-Methylpropylbenzene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
n-Butylbenzene	Phenyl butane	0.2	<0.2
Naphthalene		0.2	<0.2

Canister Verification Report

Canister No: 4977

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	20-Jan-2012
		Valid To (At least):	10-Feb-2012
		Verification File:	120120_06.D
Canister Type:	Supplier	**Stability Check:**	Supplier
Canister Size:	Entech Silonite - Summa Style	**Next Check Due:**	15-Jul-2012
Valve Type:	Nupro/Swagelok	**Analyst**	Lewis Murray

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
Benzene	Cyclohexatriene	0.2	<0.2
Bromomethane	Methyl bromide	0.2	<0.2
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2
Chlorobenzene	Phenyl chloride	0.2	<0.2
Chloroethane	Ethyl chloride	0.2	<0.2
Chloroform	Trichloromethane	0.2	<0.2
Chloromethane	Methyl chloride	0.2	<0.2
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2
Ethylbenzene	Phenyl ethane	0.2	<0.2
Freon 12	Dichlorodifluoromethane	0.2	<0.2
Freon 11	Trichlorofluoromethane	0.2	<0.2
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
Dichloromethane	Methylene chloride	0.2	<0.2
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2
Styrene	Vinyl benzene	0.2	<0.2
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2
Toluene	Methyl Benzene	0.2	<0.2
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2
Vinyl chloride	Chloroethene	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Allyl chloride	3-Chloropropene	0.2	<0.2
Bromodichloromethane	Dichlorobromomethane	0.2	<0.2
Bromoform	Tribromomethane	0.2	<0.2
Carbon disulfide	CS2	0.2	<0.2
Cyclohexane		0.2	<0.2
Dibromochloromethane	Chlorodibromoethane	0.2	<0.2
Ethyl acetate	Acetic ester	0.2	<0.2
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2
Methyl tert-butyl ether	MTBE	0.2	<0.2
n-Heptane		0.2	<0.2
n-Hexane		0.2	<0.2
Propene	Propylene	0.2	<0.2
Tetrahydrofuran	THF	0.2	<0.2
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2
Vinyl acetate	Acetic acid vinyl ester	0.2	<0.2
Bromoethene	Vinyl bromide	0.2	<0.2
Benzyl chloride	α-Chlorotoluene	0.2	<0.2
Methanol	Methyl alcohol	0.2	<0.2
Ethanol	Ethyl alcohol	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2
tert-Butyl alcohol	TBA	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
Diisopropyl Ether	DIPE	0.2	<0.2
Ethyl tert-butyl ether	ETBE	0.2	<0.2
tert-Amyl methyl ether	TAME	0.2	<0.2
Methyl methacrylate	MMA	0.2	<0.2
1,1,1,2-Tetrachloroethane	R-130a / Acetylene trichloride	0.2	<0.2
Isopropylbenzene	Cumene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
n-Propylbenzene	Phenyl propane	0.2	<0.2
tert-Butylbenzene	1,1-Dimethylethylbenzene	0.2	<0.2
sec-Butylbenzene	1-Methylpropylbenzene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
n-Butylbenzene	Phenyl butane	0.2	<0.2
Naphthalene		0.2	<0.2

Canister Verification Report

Canister No: 4981

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	18-Jan-2012
		Valid To (At least):	08-Feb-2012
		Verification File:	120118_12.D
Canister Type:	Supplier	**Stability Check:**	Supplier
Canister Size:	Entech Silonite - Summa Style	**Next Check Due:**	15-Jul-2012
Valve Type:	Nupro/Swagelok	**Analyst**	Lewis Murray

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
Benzene	Cyclohexatriene	0.2	<0.2
Bromomethane	Methyl bromide	0.2	<0.2
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2
Chlorobenzene	Phenyl chloride	0.2	<0.2
Chloroethane	Ethyl chloride	0.2	<0.2
Chloroform	Trichloromethane	0.2	<0.2
Chloromethane	Methyl chloride	0.2	<0.2
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2
Ethylbenzene	Phenyl ethane	0.2	<0.2
Freon 12	Dichlorodifluoromethane	0.2	<0.2
Freon 11	Trichlorofluoromethane	0.2	<0.2
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
Dichloromethane	Methylene chloride	0.2	<0.2
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2
Styrene	Vinyl benzene	0.2	<0.2
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2
Toluene	Methyl Benzene	0.2	<0.2
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2
Vinyl chloride	Chloroethene	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Allyl chloride	3-Chloropropene	0.2	<0.2
Bromodichloromethane	Dichlorobromomethane	0.2	<0.2
Bromoform	Tribromomethane	0.2	<0.2
Carbon disulfide	CS2	0.2	<0.2
Cyclohexane		0.2	<0.2
Dibromochloromethane	Chlorodibromoethane	0.2	<0.2
Ethyl acetate	Acetic ester	0.2	<0.2
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2
Methyl tert-butyl ether	MTBE	0.2	<0.2
n-Heptane		0.2	<0.2
n-Hexane		0.2	<0.2
Propene	Propylene	0.2	<0.2
Tetrahydrofuran	THF	0.2	<0.2
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2
Vinyl acetate	Acetic acid vinyl ester	0.2	<0.2
Bromoethene	Vinyl bromide	0.2	<0.2
Benzyl chloride	α-Chlorotoluene	0.2	<0.2
Methanol	Methyl alcohol	0.2	<0.2
Ethanol	Ethyl alcohol	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2
tert-Butyl alcohol	TBA	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
Diisopropyl Ether	DIPE	0.2	<0.2
Ethyl tert-butyl ether	ETBE	0.2	<0.2
tert-Amyl methyl ether	TAME	0.2	<0.2
Methyl methacrylate	MMA	0.2	<0.2
1,1,1,2-Tetrachloroethane	R-130a / Acetylene trichloride	0.2	<0.2
Isopropylbenzene	Cumene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
n-Propylbenzene	Phenyl propane	0.2	<0.2
tert-Butylbenzene	1,1-Dimethylethylbenzene	0.2	<0.2
sec-Butylbenzene	1-Methylpropylbenzene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
n-Butylbenzene	Phenyl butane	0.2	<0.2
Naphthalene		0.2	<0.2

Canister Verification Report

Canister No: 4982

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	19-Jan-2012
		Valid To (At least):	09-Feb-2012
		Verification File:	120119_07.D
Canister Type:	Supplier	**Stability Check:**	Supplier
Canister Size:	Entech Silonite - Summa Style	**Next Check Due:**	15-Jul-2012
Valve Type:	Nupro/Swagelok	**Analyst**	Lewis Murray

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
Benzene	Cyclohexatriene	0.2	<0.2
Bromomethane	Methyl bromide	0.2	<0.2
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2
Chlorobenzene	Phenyl chloride	0.2	<0.2
Chloroethane	Ethyl chloride	0.2	<0.2
Chloroform	Trichloromethane	0.2	<0.2
Chloromethane	Methyl chloride	0.2	<0.2
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2
Ethylbenzene	Phenyl ethane	0.2	<0.2
Freon 12	Dichlorodifluoromethane	0.2	<0.2
Freon 11	Trichlorofluoromethane	0.2	<0.2
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
Dichloromethane	Methylene chloride	0.2	<0.2
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2
Styrene	Vinyl benzene	0.2	<0.2
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2
Toluene	Methyl Benzene	0.2	<0.2
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2
Vinyl chloride	Chloroethene	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Allyl chloride	3-Chloropropene	0.2	<0.2
Bromodichloromethane	Dichlorobromomethane	0.2	<0.2
Bromoform	Tribromomethane	0.2	<0.2
Carbon disulfide	CS2	0.2	<0.2
Cyclohexane		0.2	<0.2
Dibromochloromethane	Chlorodibromoethane	0.2	<0.2
Ethyl acetate	Acetic ester	0.2	<0.2
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2
Methyl tert-butyl ether	MTBE	0.2	<0.2
n-Heptane		0.2	<0.2
n-Hexane		0.2	<0.2
Propene	Propylene	0.2	<0.2
Tetrahydrofuran	THF	0.2	<0.2
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2
Vinyl acetate	Acetic acid vinyl ester	0.2	<0.2
Bromoethene	Vinyl bromide	0.2	<0.2
Benzyl chloride	α-Chlorotoluene	0.2	<0.2
Methanol	Methyl alcohol	0.2	<0.2
Ethanol	Ethyl alcohol	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2
tert-Butyl alcohol	TBA	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
Diisopropyl Ether	DIPE	0.2	<0.2
Ethyl tert-butyl ether	ETBE	0.2	<0.2
tert-Amyl methyl ether	TAME	0.2	<0.2
Methyl methacrylate	MMA	0.2	<0.2
1,1,1,2-Tetrachloroethane	R-130a / Acetylene trichloride	0.2	<0.2
Isopropylbenzene	Cumene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
n-Propylbenzene	Phenyl propane	0.2	<0.2
tert-Butylbenzene	1,1-Dimethylethylbenzene	0.2	<0.2
sec-Butylbenzene	1-Methylpropylbenzene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
n-Butylbenzene	Phenyl butane	0.2	<0.2
Naphthalene		0.2	<0.2

Canister Verification Report

Canister No: 4983

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	18-Jan-2012
		Valid To (At least):	08-Feb-2012
		Verification File:	120118_11.D
Canister Type:	Supplier	**Stability Check:**	Supplier
Canister Size:	Entech Silonite - Summa Style	**Next Check Due:**	15-Jul-2012
Valve Type:	Nupro/Swagelok	**Analyst**	Lewis Murray

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
Benzene	Cyclohexatriene	0.2	<0.2
Bromomethane	Methyl bromide	0.2	<0.2
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2
Chlorobenzene	Phenyl chloride	0.2	<0.2
Chloroethane	Ethyl chloride	0.2	<0.2
Chloroform	Trichloromethane	0.2	<0.2
Chloromethane	Methyl chloride	0.2	<0.2
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2
Ethylbenzene	Phenyl ethane	0.2	<0.2
Freon 12	Dichlorodifluoromethane	0.2	<0.2
Freon 11	Trichlorofluoromethane	0.2	<0.2
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
Dichloromethane	Methylene chloride	0.2	<0.2
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2
Styrene	Vinyl benzene	0.2	<0.2
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2
Toluene	Methyl Benzene	0.2	<0.2
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2
Vinyl chloride	Chloroethene	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Allyl chloride	3-Chloropropene	0.2	<0.2
Bromodichloromethane	Dichlorobromomethane	0.2	<0.2
Bromoform	Tribromomethane	0.2	<0.2
Carbon disulfide	CS2	0.2	<0.2
Cyclohexane		0.2	<0.2
Dibromochloromethane	Chlorodibromoethane	0.2	<0.2
Ethyl acetate	Acetic ester	0.2	<0.2
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2
Methyl tert-butyl ether	MTBE	0.2	<0.2
n-Heptane		0.2	<0.2
n-Hexane		0.2	<0.2
Propene	Propylene	0.2	<0.2
Tetrahydrofuran	THF	0.2	<0.2
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2
Vinyl acetate	Acetic acid vinyl ester	0.2	<0.2
Bromoethene	Vinyl bromide	0.2	<0.2
Benzyl chloride	α-Chlorotoluene	0.2	<0.2
Methanol	Methyl alcohol	0.2	<0.2
Ethanol	Ethyl alcohol	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2
tert-Butyl alcohol	TBA	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
Diisopropyl Ether	DIPE	0.2	<0.2
Ethyl tert-butyl ether	ETBE	0.2	<0.2
tert-Amyl methyl ether	TAME	0.2	<0.2
Methyl methacrylate	MMA	0.2	<0.2
1,1,1,2-Tetrachloroethane	R-130a / Acetylene trichloride	0.2	<0.2
Isopropylbenzene	Cumene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
n-Propylbenzene	Phenyl propane	0.2	<0.2
tert-Butylbenzene	1,1-Dimethylethylbenzene	0.2	<0.2
sec-Butylbenzene	1-Methylpropylbenzene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
n-Butylbenzene	Phenyl butane	0.2	<0.2
Naphthalene		0.2	<0.2

Canister Verification Report

Canister No: 4989

Specified Purpose:	USEPA TO15 (Extended Suite) Ambient Air	**Verification Date**	19-Jan-2012
		Valid To (At least):	09-Feb-2012
		Verification File:	120119_08.D
Canister Type:	Supplier	**Stability Check:**	Supplier
Canister Size:	Entech Silonite - Summa Style	**Next Check Due:**	15-Jul-2012
Valve Type:	Nupro/Swagelok	**Analyst**	Lewis Murray

Canister Verification Protocol

Canisters are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, canisters are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed biannually, over a 4 week period to ensure each canister is capable of holding the target chemicals without degradation.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared Canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)
http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
Benzene	Cyclohexatriene	0.2	<0.2
Bromomethane	Methyl bromide	0.2	<0.2
Tetrachloromethane	Carbon tetrachloride	0.2	<0.2
Chlorobenzene	Phenyl chloride	0.2	<0.2
Chloroethane	Ethyl chloride	0.2	<0.2
Chloroform	Trichloromethane	0.2	<0.2
Chloromethane	Methyl chloride	0.2	<0.2
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	<0.2
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2
Ethylbenzene	Phenyl ethane	0.2	<0.2
Freon 12	Dichlorodifluoromethane	0.2	<0.2
Freon 11	Trichlorofluoromethane	0.2	<0.2
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	<0.2
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	<0.2
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2

Target Compound	Alt. Name	Verified to ppbv	Result ppbv
Dichloromethane	Methylene chloride	0.2	<0.2
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2
Styrene	Vinyl benzene	0.2	<0.2
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2
Toluene	Methyl Benzene	0.2	<0.2
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2
Vinyl chloride	Chloroethene	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Allyl chloride	3-Chloropropene	0.2	<0.2
Bromodichloromethane	Dichlorobromomethane	0.2	<0.2
Bromoform	Tribromomethane	0.2	<0.2
Carbon disulfide	CS2	0.2	<0.2
Cyclohexane		0.2	<0.2
Dibromochloromethane	Chlorodibromoethane	0.2	<0.2
Ethyl acetate	Acetic ester	0.2	<0.2
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	<0.2
Methyl butyl ketone	MBK / 2-Hexanone	0.2	<0.2
Methyl ethyl ketone	MEK / 2-Butanone	0.2	<0.2
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	<0.2
Methyl tert-butyl ether	MTBE	0.2	<0.2
n-Heptane		0.2	<0.2
n-Hexane		0.2	<0.2
Propene	Propylene	0.2	<0.2
Tetrahydrofuran	THF	0.2	<0.2
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	<0.2
Vinyl acetate	Acetic acid vinyl ester	0.2	<0.2
Bromoethene	Vinyl bromide	0.2	<0.2
Benzyl chloride	α-Chlorotoluene	0.2	<0.2
Methanol	Methyl alcohol	0.2	<0.2
Ethanol	Ethyl alcohol	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2
tert-Butyl alcohol	TBA	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
Diisopropyl Ether	DIPE	0.2	<0.2
Ethyl tert-butyl ether	ETBE	0.2	<0.2
tert-Amyl methyl ether	TAME	0.2	<0.2
Methyl methacrylate	MMA	0.2	<0.2
1,1,1,2-Tetrachloroethane	R-130a / Acetylene trichloride	0.2	<0.2
Isopropylbenzene	Cumene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
n-Propylbenzene	Phenyl propane	0.2	<0.2
tert-Butylbenzene	1,1-Dimethylethylbenzene	0.2	<0.2
sec-Butylbenzene	1-Methylpropylbenzene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
n-Butylbenzene	Phenyl butane	0.2	<0.2
Naphthalene		0.2	<0.2

ATTACHMENT 2 WEATHER STATION CALIBRATION

TRtechrentals

CERTIFICATE OF CALIBRATION CONFORMANCE

Certificate Number : 18703
Reference : 423696
Model : ENV,WM20
Asset Number : 89281

Date Calibrated: 11/08/2010
Technician : Cris Ascenzo
Serial No. : 0310-0614
Calibration valid for: 730 days.

Description : Environdata WeatherMaster 2000 Weather Station

The Performance of the above listed equipment has been verified for measurement accuracy to the manufacturers relevant published specification, in accordance with our Quality Assurance Procedures, using the appropriate calibrated equipment, traceable to nationally recognized standards.

SOURCE ASSET 89375 TES,400 REPORT 389420 DUE 9/09/2010
SOURCE ASSET 60372 EMA,84 REPORT 421066 DUE 25/06/2011

Service Manager

QSF 326-1/B

ATTACHMENT 3 LABORATORY QC REPORTS

Environmental Division

QUALITY CONTROL REPORT

Work Order	: **EN1101834**	Page	: 1 of 11
Client	: **ENVIRONMENTAL EARTH SCIENCES**	Laboratory	: Environmental Division Newcastle
Contact	: MS ANNE WHINCUP	Contact	: Peter Keyte
Address	: P.O.BOX 2253 FOOTSCRAY VIC, AUSTRALIA 3011	Address	: 5 Rosegum Road Warabrook NSW Australia 2304
E-mail	: awhincup@eesi.biz	E-mail	: peter.keyte@als.com.au
Telephone	: +61 03 9687 1666	Telephone	: 61-2-4968-9433
Facsimile	: +61 03 9687 1844	Facsimile	: +61-2-4968 0349
Project	: STH MELBOURNE GASWORKS	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 21-JUL-2011
Sampler	: ANNE WHINCUP	Issue Date	: 28-JUL-2011
Order number	: ----		
		No. of samples received	: 16
Quote number	: ----	No. of samples analysed	: 16

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report ; Recovery and Acceptance Limits
- Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report; Recovery and Acceptance Limits

NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Peter Keyte	Newcastle Manager	Newcastle

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insuffient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
USEPA Air Toxics Method TO15r (QC Lot: 1885901)									
EN1101834-001	4989 DRESSING ROOM	EP101-15X: Freon 12	75-71-8	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Chloromethane	74-87-3	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Freon 114	76-14-2	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Bromomethane	74-83-9	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Freon 11	75-69-4	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Dichloromethane	75-09-2	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Freon 113	76-13-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Chloroform	67-66-3	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Benzene	71-43-2	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Carbon Tetrachloride	56-23-5	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.2-Dichloropropane	78-87-5	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: cis-1.3-Dichloropropylene	10061-01-5	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Toluene	108-88-3	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Chlorobenzene	108-90-7	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Styrene	100-42-5	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 4-Ethyltoluene	---	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Benzylchloride	100-44-7	0.5	ppbv	<1.3	<1.3	0.0	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
USEPA Air Toxics Method TO15r (QC Lot: 1885901) - continued									
EN1101834-001	4989 DRESSING ROOM	EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Hexachlorobutadiene	87-68-3	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Acetone	67-64-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Bromodichloromethane	75-27-4	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.3-Butadiene	106-99-0	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Carbon disulfide	75-15-0	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 2-Chlorotoluene	95-49-8	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Cyclohexane	----	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Dibromochloromethane	124-48-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.4-Dioxane	123-91-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Ethylacetate	9002-89-5	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Heptane	142-82-5	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Hexane	----	0.5	ppbv	7.2	7.2	0.0	0% - 50%
		EP101-15X: Isooctane	----	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 2-Butanone (MEK)	78-93-3	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Methyl iso-Butyl ketone	108-10-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Propene	115-07-1	0.5	ppbv	2.1	1.8	18.3	No Limit
		EP101-15X: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Tetrahydrofuran	109-99-9	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Bromoform	75-25-2	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Vinyl Acetate	108-05-4	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Vinyl bromide	593-60-2	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Ethanol	64-70-5	0.5	ppbv	90.2	89.1	1.3	0% - 20%
		EP101-15X: Acetonitrile	75-05-8	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Acrolein	107-02-8	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Acrylonitrile	107-13-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: tert-Butyl alcohol	75-65-0	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 2-Chloro-1.3-butadiene	----	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Di-isopropyl Ether	----	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: tert-Amyl Methyl Ether (TAME)	994-05-8	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Methyl Methacrylate	80-62-6	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Isopropylbenzene	98-82-8	0.5	ppbv	<1.3	<1.3	0.0	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
USEPA Air Toxics Method TO15r (QC Lot: 1885901) - continued									
EN1101834-001	4989 DRESSING ROOM	EP101-15X: n-Propylbenzene	103-65-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: tert-Butylbenzene	98-06-6	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: sec-Butylbenzene	135-98-8	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 2-isopropyltoluene	---	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: n-Butylbenzene	104-51-8	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: meta- & para-Xylene	108-38-3 106-42-3	1.0	ppbv	<2.5	<2.5	0.0	No Limit
EN1101834-011	4772 CERAMIC STUDIO	EP101-15X: Freon 12	75-71-8	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Chloromethane	74-87-3	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Freon 114	76-14-2	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Bromomethane	74-83-9	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Freon 11	75-69-4	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Dichloromethane	75-09-2	0.5	ppbv	4.0	4.2	4.6	No Limit
		EP101-15X: Freon 113	76-13-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Chloroform	67-66-3	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Benzene	71-43-2	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Carbon Tetrachloride	56-23-5	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.2-Dichloropropane	78-87-5	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: cis-1.3-Dichloropropylene	10061-01-5	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Toluene	108-88-3	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Chlorobenzene	108-90-7	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Styrene	100-42-5	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 4-Ethyltoluene	---	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5	ppbv	<1.3	<1.3	0.0	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
USEPA Air Toxics Method TO15r (QC Lot: 1885901) - continued									
EN1101834-011	4772 CERAMIC STUDIO	EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Benzylchloride	100-44-7	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Hexachlorobutadiene	87-68-3	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Acetone	67-64-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Bromodichloromethane	75-27-4	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.3-Butadiene	106-99-0	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Carbon disulfide	75-15-0	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 2-Chlorotoluene	95-49-8	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Cyclohexane	----	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Dibromochloromethane	124-48-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.4-Dioxane	123-91-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Ethylacetate	9002-89-5	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Heptane	142-82-5	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Hexane	----	0.5	ppbv	6.6	6.7	0.0	0% - 50%
		EP101-15X: Isooctane	----	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 2-Butanone (MEK)	78-93-3	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Methyl iso-Butyl ketone	108-10-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Propene	115-07-1	0.5	ppbv	2.5	2.3	9.0	No Limit
		EP101-15X: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Tetrahydrofuran	109-99-9	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Bromoform	75-25-2	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Vinyl Acetate	108-05-4	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Vinyl bromide	593-60-2	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Ethanol	64-70-5	0.5	ppbv	32.8	34.4	4.6	0% - 20%
		EP101-15X: Acetonitrile	75-05-8	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Acrolein	107-02-8	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Acrylonitrile	107-13-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: tert-Butyl alcohol	75-65-0	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 2-Chloro-1.3-butadiene	----	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Di-isopropyl Ether	----	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: tert-Amyl Methyl Ether (TAME)	994-05-8	0.5	ppbv	<1.3	<1.3	0.0	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
USEPA Air Toxics Method TO15r (QC Lot: 1885901) - continued									
EN1101834-011	4772 CERAMIC STUDIO	EP101-15X: Methyl Methacrylate	80-62-6	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Isopropylbenzene	98-82-8	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: n-Propylbenzene	103-65-1	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: tert-Butylbenzene	98-06-6	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: sec-Butylbenzene	135-98-8	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: 2-isopropyltoluene	---	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: n-Butylbenzene	104-51-8	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<1.3	<1.3	0.0	No Limit
		EP101-15X: meta- & para-Xylene	108-38-3 106-42-3	1.0	ppbv	<2.6	<2.6	0.0	No Limit

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control terms Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (DCS) refers to certified reference materials, or known interference free matrices spiked with target analytes. The purpose of these QC parameters are to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS and DCS.

Sub-Matrix: **AIR**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
USEPA Air Toxics Method TO15r (QCLot: 1885901)											
EP101-15X: Freon 12	75-71-8	0.5	ppbv	<0.5	10 ppbv	102	98.8	70	130	3.5	25
EP101-15X: Chloromethane	74-87-3	0.5	ppbv	<0.5	10 ppbv	103	99.9	70	130	3.0	25
EP101-15X: Freon 114	76-14-2	0.5	ppbv	<0.5	10 ppbv	101	99.6	70	130	1.1	25
EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<0.5	10 ppbv	97.5	103	70	130	5.9	25
EP101-15X: Bromomethane	74-83-9	0.5	ppbv	<0.5	10 ppbv	102	112	70	130	9.4	25
EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<0.5	10 ppbv	108	111	70	130	2.5	25
EP101-15X: Freon 11	75-69-4	0.5	ppbv	<0.5	10 ppbv	102	97.3	70	130	4.7	25
EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<0.5	10 ppbv	97.0	98.5	70	130	1.6	25
EP101-15X: Dichloromethane	75-09-2	0.5	ppbv	<0.5	10 ppbv	103	97.5	70	130	5.1	25
EP101-15X: Freon 113	76-13-1	0.5	ppbv	<0.5	10 ppbv	112	111	70	130	1.3	25
EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<0.5	10 ppbv	101	98.0	70	130	3.5	25
EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<0.5	10 ppbv	99.6	97.6	70	130	2.1	25
EP101-15X: Chloroform	67-66-3	0.5	ppbv	<0.5	10 ppbv	102	96.0	70	130	6.2	25
EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<0.5	10 ppbv	102	96.4	70	130	6.0	25
EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<0.5	10 ppbv	102	95.8	70	130	6.1	25
EP101-15X: Benzene	71-43-2	0.5	ppbv	<0.5	10 ppbv	101	98.5	70	130	2.7	25
EP101-15X: Carbon Tetrachloride	56-23-5	0.5	ppbv	<0.5	10 ppbv	110	102	70	130	8.4	25
EP101-15X: 1.2-Dichloropropane	78-87-5	0.5	ppbv	<0.5	10 ppbv	105	106	70	130	0.1	25
EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<0.5	10 ppbv	106	105	70	130	1.2	25
EP101-15X: cis-1.3-Dichloropropylene	10061-01-5	0.5	ppbv	<0.5	10 ppbv	106	104	70	130	2.4	25
EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5	ppbv	<0.5	10 ppbv	120	98.7	70	130	19.2	25
EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<0.5	10 ppbv	107	106	70	130	1.2	25
EP101-15X: Toluene	108-88-3	0.5	ppbv	<0.5	10 ppbv	113	96.8	70	130	15.4	25
EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5	ppbv	<0.5	10 ppbv	106	103	70	130	3.2	25
EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<0.5	10 ppbv	105	103	70	130	2.5	25
EP101-15X: Chlorobenzene	108-90-7	0.5	ppbv	<0.5	10 ppbv	98.5	102	70	130	3.3	25
EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	<0.5	10 ppbv	98.4	99.2	70	130	0.8	25
EP101-15X: meta- & para-Xylene	108-38-3 106-42-3	1	ppbv	<1.0	20 ppbv	97.9	99.3	70	130	1.4	25
EP101-15X: Styrene	100-42-5	0.5	ppbv	<0.5	10 ppbv	103	103	70	130	0.03	25
EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	ppbv	<0.5	10 ppbv	110	110	70	130	0.1	25
EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	<0.5	10 ppbv	99.4	102	70	130	2.4	25
EP101-15X: 4-Ethyltoluene	----	0.5	ppbv	<0.5	10 ppbv	101	105	70	130	3.4	25
EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5	ppbv	<0.5	10 ppbv	98.0	101	70	130	2.8	25

Sub-Matrix: **AIR**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
USEPA Air Toxics Method TO15r (QCLot: 1885901) - continued											
EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5	ppbv	<0.5	10 ppbv	96.5	101	70	130	4.4	25
EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5	ppbv	<0.5	10 ppbv	95.8	102	70	130	6.1	25
EP101-15X: Benzylchloride	100-44-7	0.5	ppbv	<0.5	10 ppbv	96.8	104	70	130	7.0	25
EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5	ppbv	<0.5	10 ppbv	95.1	102	70	130	6.9	25
EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5	ppbv	<0.5	10 ppbv	94.3	104	70	130	9.4	25
EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5	ppbv	<0.5	10 ppbv	92.1	106	70	130	14.3	25
EP101-15X: Hexachlorobutadiene	87-68-3	0.5	ppbv	<0.5	10 ppbv	93.9	103	70	130	9.0	25
EP101-15X: Acetone	67-64-1	0.5	ppbv	<0.5	10 ppbv	102	91.1	70	130	11.6	25
EP101-15X: Bromodichloromethane	75-27-4	0.5	ppbv	<0.5	10 ppbv	108	103	70	130	4.3	25
EP101-15X: 1.3-Butadiene	106-99-0	0.5	ppbv	<0.5	10 ppbv	96.3	102	70	130	5.6	25
EP101-15X: Carbon disulfide	75-15-0	0.5	ppbv	<0.5	10 ppbv	98.8	100	70	130	1.3	25
EP101-15X: 2-Chlorotoluene	95-49-8	0.5	ppbv	<0.5	10 ppbv	95.5	102	70	130	7.0	25
EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5	ppbv	<0.5	10 ppbv	98.4	100	70	130	1.6	25
EP101-15X: Cyclohexane	----	0.5	ppbv	<0.5	10 ppbv	99.3	95.9	70	130	3.5	25
EP101-15X: Dibromochloromethane	124-48-1	0.5	ppbv	<0.5	10 ppbv	103	97.4	70	130	5.6	25
EP101-15X: 1.4-Dioxane	123-91-1	0.5	ppbv	<0.5	10 ppbv	104	104	70	130	0.3	25
EP101-15X: Ethylacetate	9002-89-5	0.5	ppbv	<0.5	10 ppbv	95.4	95.4	70	130	0.008	25
EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<0.5	10 ppbv	98.2	98.9	70	130	0.7	25
EP101-15X: Heptane	142-82-5	0.5	ppbv	<0.5	10 ppbv	103	98.7	70	130	3.9	25
EP101-15X: Hexane	----	0.5	ppbv	<0.5	10 ppbv	98.2	100	70	130	2.0	25
EP101-15X: Isooctane	----	0.5	ppbv	<0.5	10 ppbv	102	99.6	70	130	2.8	25
EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	<0.5	10 ppbv	97.5	97.5	70	130	0.05	25
EP101-15X: 2-Butanone (MEK)	78-93-3	0.5	ppbv	<0.5	10 ppbv	101	94.9	70	130	6.5	25
EP101-15X: Methyl iso-Butyl ketone	108-10-1	0.5	ppbv	<0.5	10 ppbv	103	100	70	130	2.8	25
EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5	ppbv	<0.5	10 ppbv	115	104	70	130	10.0	25
EP101-15X: Propene	115-07-1	0.5	ppbv	<0.5	10 ppbv	98.9	105	70	130	5.8	25
EP101-15X: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	ppbv	<0.5	10 ppbv	98.9	96.7	70	130	2.3	25
EP101-15X: Tetrahydrofuran	109-99-9	0.5	ppbv	<0.5	10 ppbv	98.5	97.0	70	130	1.5	25
EP101-15X: Bromoform	75-25-2	0.5	ppbv	<0.5	10 ppbv	102	101	70	130	0.9	25
EP101-15X: Vinyl Acetate	108-05-4	0.5	ppbv	<0.5	10 ppbv	107	96.9	70	130	9.5	25
EP101-15X: Vinyl bromide	593-60-2	0.5	ppbv	<0.5	10 ppbv	95.9	101	70	130	5.4	25
EP101-15X: Ethanol	64-70-5	0.5	ppbv	<0.5	10 ppbv	96.7	102	70	130	5.8	25
EP101-15X: Acetonitrile	75-05-8	0.5	ppbv	<0.5	10 ppbv	105	108	70	130	2.6	25
EP101-15X: Acrolein	107-02-8	0.5	ppbv	<0.5	10 ppbv	109	104	70	130	4.1	25
EP101-15X: Acrylonitrile	107-13-1	0.5	ppbv	<0.5	10 ppbv	100	96.8	70	130	3.3	25
EP101-15X: tert-Butyl alcohol	75-65-0	0.5	ppbv	<0.5	10 ppbv	98.5	95.1	70	130	3.6	25
EP101-15X: 2-Chloro-1.3-butadiene	----	0.5	ppbv	<0.5	10 ppbv	98.3	97.0	70	130	1.3	25
EP101-15X: Di-isopropyl Ether	----	0.5	ppbv	<0.5	10 ppbv	98.9	96.9	70	130	2.0	25
EP101-15X: Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.5	ppbv	<0.5	10 ppbv	99.1	96.0	70	130	3.2	25

Sub-Matrix: **AIR**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
USEPA Air Toxics Method TO15r (QCLot: 1885901) - continued											
EP101-15X: tert-Amyl Methyl Ether (TAME)	994-05-8	0.5	ppbv	<0.5	10 ppbv	102	93.9	70	130	8.3	25
EP101-15X: Methyl Methacrylate	80-62-6	0.5	ppbv	<0.5	10 ppbv	106	102	70	130	4.0	25
EP101-15X: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	ppbv	<0.5	10 ppbv	100	99.4	70	130	0.8	25
EP101-15X: Isopropylbenzene	98-82-8	0.5	ppbv	<0.5	10 ppbv	98.7	99.0	70	130	0.3	25
EP101-15X: n-Propylbenzene	103-65-1	0.5	ppbv	<0.5	10 ppbv	98.0	101	70	130	3.0	25
EP101-15X: tert-Butylbenzene	98-06-6	0.5	ppbv	<0.5	10 ppbv	97.3	99.7	70	130	2.4	25
EP101-15X: sec-Butylbenzene	135-98-8	0.5	ppbv	<0.5	10 ppbv	99.3	104	70	130	4.9	25
EP101-15X: 2-isopropyltoluene	----	0.5	ppbv	<0.5	10 ppbv	96.6	115	70	130	17.6	25
EP101-15X: n-Butylbenzene	104-51-8	0.5	ppbv	<0.5	10 ppbv	94.8	101	70	130	6.4	25
EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<0.5	10 ppbv	92.9	107	70	130	14.6	25

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Group
Environmental Division

QUALITY CONTROL REPORT

Work Order	: **EN1200432**	Page	: 1 of 11
Client	: **ENVIRONMENTAL EARTH SCIENCES**	Laboratory	: Environmental Division Newcastle
Contact	: MS ANNE WHINCUP	Contact	: Peter Keyte
Address	: P.O.BOX 2253 FOOTSCRAY VIC, AUSTRALIA 3011	Address	: 5 Rosegum Road Warabrook NSW Australia 2304
E-mail	: awhincup@eesi.biz	E-mail	: peter.keyte@als.com.au
Telephone	: +61 03 9687 1666	Telephone	: 61-2-4968-9433
Facsimile	: +61 03 9687 1844	Facsimile	: +61-2-4968 0349
Project	: 210074 STH MELBOURNE GASWORKS	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 03-FEB-2012
Sampler	: ANNE WHINCUP	Issue Date	: 13-FEB-2012
Order number	: ----		
		No. of samples received	: 16
Quote number	: ----	No. of samples analysed	: 16

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report ; Recovery and Acceptance Limits
- Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report; Recovery and Acceptance Limits

NATA
WORLD RECOGNISED ACCREDITATION

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Peter Keyte	Newcastle Manager	Newcastle

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insuffient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
USEPA Air Toxics Method TO15r (QC Lot: 2159336)									
EN1200432-001	4747 GARDEN STUDIO	EP101-15X: Freon 12	75-71-8	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Chloromethane	74-87-3	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Freon 114	76-14-2	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Bromomethane	74-83-9	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Freon 11	75-69-4	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Dichloromethane	75-09-2	0.5	ppbv	<2.1	2.6	22.2	No Limit
		EP101-15X: Freon 113	76-13-1	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Chloroform	67-66-3	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Benzene	71-43-2	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Carbon Tetrachloride	56-23-5	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: 1.2-Dichloropropane	78-87-5	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: cis-1.3-Dichloropropylene	10061-01-5	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Toluene	108-88-3	0.5	ppbv	13.2	13.1	0.0	0% - 20%
		EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Chlorobenzene	108-90-7	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Styrene	100-42-5	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	<4.2	<4.5	5.4	No Limit
		EP101-15X: 4-Ethyltoluene	---	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Benzylchloride	100-44-7	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5	ppbv	<2.1	<2.2	5.4	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
USEPA Air Toxics Method TO15r (QC Lot: 2159336) - continued									
EN1200432-001	4747 GARDEN STUDIO	EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Hexachlorobutadiene	87-68-3	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Acetone	67-64-1	0.5	ppbv	<8.4	<8.9	5.4	No Limit
		EP101-15X: Bromodichloromethane	75-27-4	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: 1.3-Butadiene	106-99-0	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Carbon disulfide	75-15-0	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: 2-Chlorotoluene	95-49-8	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Cyclohexane	110-82-7	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Dibromochloromethane	124-48-1	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: 1.4-Dioxane	123-91-1	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Ethylacetate	9002-89-5	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Heptane	142-82-5	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Hexane	----	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Isooctane	----	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	2.7	2.6	0.0	No Limit
		EP101-15X: 2-Butanone (MEK)	78-93-3	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Methyl iso-Butyl ketone	108-10-1	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Propene	115-07-1	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Tetrahydrofuran	109-99-9	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Bromoform	75-25-2	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Vinyl Acetate	108-05-4	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Vinyl bromide	593-60-2	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Ethanol	64-17-5	0.5	ppbv	2.4	2.6	6.1	No Limit
		EP101-15X: Acetonitrile	75-05-8	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Acrolein	107-02-8	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Acrylonitrile	107-13-1	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: tert-Butyl alcohol	75-65-0	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: 2-Chloro-1.3-butadiene	----	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Di-isopropyl Ether	----	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: tert-Amyl Methyl Ether (TAME)	994-05-8	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Methyl Methacrylate	80-62-6	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Isopropylbenzene	98-82-8	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: n-Propylbenzene	103-65-1	0.5	ppbv	<2.1	<2.2	5.4	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
USEPA Air Toxics Method TO15r (QC Lot: 2159336) - continued									
EN1200432-001	4747 GARDEN STUDIO	EP101-15X: tert-Butylbenzene	98-06-6	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: sec-Butylbenzene	135-98-8	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: 2-isopropyltoluene	---	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: n-Butylbenzene	104-51-8	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<2.1	<2.2	5.4	No Limit
		EP101-15X: meta- & para-Xylene	108-38-3 106-42-3	1.0	ppbv	<4.2	<4.5	5.4	No Limit
EN1200432-010	4982 GATE HOUSE	EP101-15X: Freon 12	75-71-8	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Chloromethane	74-87-3	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Freon 114	76-14-2	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Bromomethane	74-83-9	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Freon 11	75-69-4	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Dichloromethane	75-09-2	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Freon 113	76-13-1	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Chloroform	67-66-3	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Benzene	71-43-2	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Carbon Tetrachloride	56-23-5	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 1.2-Dichloropropane	78-87-5	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: cis-1.3-Dichloropropylene	10061-01-5	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Toluene	108-88-3	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Chlorobenzene	108-90-7	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Styrene	100-42-5	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 4-Ethyltoluene	---	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5	ppbv	<2.2	<2.3	0.0	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
USEPA Air Toxics Method TO15r (QC Lot: 2159336) - continued									
EN1200432-010	4982 GATE HOUSE	EP101-15X: Benzylchloride	100-44-7	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Hexachlorobutadiene	87-68-3	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Acetone	67-64-1	0.5	ppbv	<9.0	<9.3	3.4	No Limit
		EP101-15X: Bromodichloromethane	75-27-4	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 1.3-Butadiene	106-99-0	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Carbon disulfide	75-15-0	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 2-Chlorotoluene	95-49-8	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Cyclohexane	110-82-7	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Dibromochloromethane	124-48-1	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 1.4-Dioxane	123-91-1	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Ethylacetate	9002-89-5	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Heptane	142-82-5	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Hexane	---	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Isooctane	---	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	2.7	2.7	0.0	No Limit
		EP101-15X: 2-Butanone (MEK)	78-93-3	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Methyl iso-Butyl ketone	108-10-1	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Propene	115-07-1	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Tetrahydrofuran	109-99-9	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Bromoform	75-25-2	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Vinyl Acetate	108-05-4	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Vinyl bromide	593-60-2	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Ethanol	64-17-5	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Acetonitrile	75-05-8	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Acrolein	107-02-8	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Acrylonitrile	107-13-1	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: tert-Butyl alcohol	75-65-0	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 2-Chloro-1.3-butadiene	---	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Di-isopropyl Ether	---	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: tert-Amyl Methyl Ether (TAME)	994-05-8	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Methyl Methacrylate	80-62-6	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	ppbv	<2.2	<2.3	0.0	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
USEPA Air Toxics Method TO15r (QC Lot: 2159336) - continued									
EN1200432-010	4982 GATE HOUSE	EP101-15X: Isopropylbenzene	98-82-8	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: n-Propylbenzene	103-65-1	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: tert-Butylbenzene	98-06-6	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: sec-Butylbenzene	135-98-8	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: 2-isopropyltoluene	---	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: n-Butylbenzene	104-51-8	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<2.2	<2.3	0.0	No Limit
		EP101-15X: meta- & para-Xylene	108-38-3 106-42-3	1.0	ppbv	<4.5	<4.7	3.4	No Limit

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control terms Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (DCS) refers to certified reference materials, or known interference free matrices spiked with target analytes. The purpose of these QC parameters are to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS and DCS.

Sub-Matrix: **AIR**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
USEPA Air Toxics Method TO15r (QCLot: 2159336)											
EP101-15X: Freon 12	75-71-8	0.5	ppbv	<0.5	10 ppbv	99.1	103	70	130	3.9	25
EP101-15X: Chloromethane	74-87-3	0.5	ppbv	<0.5	10 ppbv	104	109	70	130	4.4	25
EP101-15X: Freon 114	76-14-2	0.5	ppbv	<0.5	10 ppbv	96.0	99.2	70	130	3.4	25
EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<0.5	10 ppbv	98.3	101	70	130	3.1	25
EP101-15X: Bromomethane	74-83-9	0.5	ppbv	<0.5	10 ppbv	112	116	70	130	3.2	25
EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<0.5	10 ppbv	102	104	70	130	1.8	25
EP101-15X: Freon 11	75-69-4	0.5	ppbv	<0.5	10 ppbv	106	103	70	130	2.5	25
EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<0.5	10 ppbv	98.8	93.7	70	130	5.3	25
EP101-15X: Dichloromethane	75-09-2	0.5	ppbv	<0.5	10 ppbv	104	96.6	70	130	7.8	25
EP101-15X: Freon 113	76-13-1	0.5	ppbv	<0.5	10 ppbv	91.8	86.1	70	130	6.4	25
EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<0.5	10 ppbv	105	98.7	70	130	6.3	25
EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<0.5	10 ppbv	96.6	95.9	70	130	0.8	25
EP101-15X: Chloroform	67-66-3	0.5	ppbv	<0.5	10 ppbv	106	105	70	130	1.7	25
EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<0.5	10 ppbv	101	99.0	70	130	1.7	25
EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<0.5	10 ppbv	102	101	70	130	1.3	25
EP101-15X: Benzene	71-43-2	0.5	ppbv	<0.5	10 ppbv	108	98.5	70	130	9.4	25
EP101-15X: Carbon Tetrachloride	56-23-5	0.5	ppbv	<0.5	10 ppbv	106	105	70	130	1.2	25
EP101-15X: 1.2-Dichloropropane	78-87-5	0.5	ppbv	<0.5	10 ppbv	114	118	70	130	3.3	25
EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<0.5	10 ppbv	98.1	96.3	70	130	1.9	25
EP101-15X: cis-1.3-Dichloropropylene	10061-01-5	0.5	ppbv	<0.5	10 ppbv	109	107	70	130	1.8	25
EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5	ppbv	<0.5	10 ppbv	109	106	70	130	2.3	25
EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<0.5	10 ppbv	117	114	70	130	2.2	25
EP101-15X: Toluene	108-88-3	0.5	ppbv	<0.5	10 ppbv	104	102	70	130	2.8	25
EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5	ppbv	<0.5	10 ppbv	109	107	70	130	2.0	25
EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<0.5	10 ppbv	98.0	96.2	70	130	1.9	25
EP101-15X: Chlorobenzene	108-90-7	0.5	ppbv	<0.5	10 ppbv	93.3	92.0	70	130	1.4	25
EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	<0.5	10 ppbv	96.3	94.6	70	130	1.8	25
EP101-15X: meta- & para-Xylene	108-38-3 106-42-3	1	ppbv	<1.0	20 ppbv	98.7	96.4	70	130	2.3	25
EP101-15X: Styrene	100-42-5	0.5	ppbv	<0.5	10 ppbv	89.7	91.4	70	130	1.8	25
EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	ppbv	<0.5	10 ppbv	110	109	70	130	0.6	25
EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	<1.0	10 ppbv	92.4	93.7	70	130	1.4	25
EP101-15X: 4-Ethyltoluene	----	0.5	ppbv	<0.5	10 ppbv	93.2	95.4	70	130	2.4	25
EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5	ppbv	<0.5	10 ppbv	91.0	93.3	70	130	2.4	25
EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5	ppbv	<0.5	10 ppbv	90.4	92.8	70	130	2.6	25

Sub-Matrix: **AIR**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
USEPA Air Toxics Method TO15r (QCLot: 2159336) - continued											
EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5	ppbv	<0.5	10 ppbv	86.9	88.3	70	130	1.6	25
EP101-15X: Benzylchloride	100-44-7	0.5	ppbv	<0.5	10 ppbv	85.6	89.1	70	130	3.9	25
EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5	ppbv	<0.5	10 ppbv	86.2	88.2	70	130	2.3	25
EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5	ppbv	<0.5	10 ppbv	90.2	91.4	70	130	1.3	25
EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5	ppbv	<0.5	10 ppbv	89.2	90.9	70	130	1.9	25
EP101-15X: Hexachlorobutadiene	87-68-3	0.5	ppbv	<0.5	10 ppbv	91.7	89.4	70	130	2.5	25
EP101-15X: Acetone	67-64-1	0.5	ppbv	<0.5	10 ppbv	109	92.5	70	130	16.1	25
EP101-15X: Bromodichloromethane	75-27-4	0.5	ppbv	<0.5	10 ppbv	121	118	70	130	2.5	25
EP101-15X: 1.3-Butadiene	106-99-0	0.5	ppbv	<0.5	10 ppbv	94.1	94.3	70	130	0.2	25
EP101-15X: Carbon disulfide	75-15-0	0.5	ppbv	<0.5	10 ppbv	108	102	70	130	6.2	25
EP101-15X: 2-Chlorotoluene	95-49-8	0.5	ppbv	<0.5	10 ppbv	89.0	91.3	70	130	2.6	25
EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5	ppbv	<0.5	10 ppbv	97.5	93.3	70	130	4.4	25
EP101-15X: Cyclohexane	110-82-7	0.5	ppbv	<0.5	10 ppbv	95.2	92.6	70	130	2.8	25
EP101-15X: Dibromochloromethane	124-48-1	0.5	ppbv	<0.5	10 ppbv	110	107	70	130	2.8	25
EP101-15X: 1.4-Dioxane	123-91-1	0.5	ppbv	<0.5	10 ppbv	103	101	70	130	1.6	25
EP101-15X: Ethylacetate	9002-89-5	0.5	ppbv	<0.5	10 ppbv	98.1	96.6	70	130	1.5	25
EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<0.5	10 ppbv	104	98.0	70	130	6.4	25
EP101-15X: Heptane	142-82-5	0.5	ppbv	<0.5	10 ppbv	93.8	92.2	70	130	1.7	25
EP101-15X: Hexane	----	0.5	ppbv	<0.5	10 ppbv	91.7	86.9	70	130	5.4	25
EP101-15X: Isooctane	----	0.5	ppbv	<0.5	10 ppbv	94.4	92.3	70	130	2.3	25
EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	<0.5	10 ppbv	88.6	82.9	70	130	6.7	25
EP101-15X: 2-Butanone (MEK)	78-93-3	0.5	ppbv	<0.5	10 ppbv	97.4	95.6	70	130	1.8	25
EP101-15X: Methyl iso-Butyl ketone	108-10-1	0.5	ppbv	<0.5	10 ppbv	104	100	70	130	3.8	25
EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5	ppbv	<0.5	10 ppbv	102	99.3	70	130	2.5	25
EP101-15X: Propene	115-07-1	0.5	ppbv	<0.5	10 ppbv	79.4	84.8	70	130	6.5	25
EP101-15X: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	ppbv	<0.5	10 ppbv	87.6	85.2	70	130	2.8	25
EP101-15X: Tetrahydrofuran	109-99-9	0.5	ppbv	<0.5	10 ppbv	92.7	88.4	70	130	4.8	25
EP101-15X: Bromoform	75-25-2	0.5	ppbv	<0.5	10 ppbv	97.0	97.3	70	130	0.3	25
EP101-15X: Vinyl Acetate	108-05-4	0.5	ppbv	<0.5	10 ppbv	95.5	93.5	70	130	2.1	25
EP101-15X: Vinyl bromide	593-60-2	0.5	ppbv	<0.5	10 ppbv	93.8	91.6	70	130	2.4	25
EP101-15X: Ethanol	64-17-5	0.5	ppbv	<0.5	10 ppbv	84.9	80.5	70	130	5.3	25
EP101-15X: Acetonitrile	75-05-8	0.5	ppbv	<0.5	10 ppbv	91.5	88.6	70	130	3.2	25
EP101-15X: Acrolein	107-02-8	0.5	ppbv	<0.5	10 ppbv	92.3	86.7	70	130	6.3	25
EP101-15X: Acrylonitrile	107-13-1	0.5	ppbv	<0.5	10 ppbv	101	93.3	70	130	7.6	25
EP101-15X: tert-Butyl alcohol	75-65-0	0.5	ppbv	<0.5	10 ppbv	82.1	78.9	70	130	4.0	25
EP101-15X: 2-Chloro-1.3-butadiene	----	0.5	ppbv	<0.5	10 ppbv	92.7	88.6	70	130	4.6	25
EP101-15X: Di-isopropyl Ether	----	0.5	ppbv	<0.5	10 ppbv	91.9	85.5	70	130	7.2	25
EP101-15X: Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.5	ppbv	<0.5	10 ppbv	83.7	83.6	70	130	0.06	25
EP101-15X: tert-Amyl Methyl Ether (TAME)	994-05-8	0.5	ppbv	<0.5	10 ppbv	80.0	79.7	70	130	0.4	25
EP101-15X: Methyl Methacrylate	80-62-6	0.5	ppbv	<0.5	10 ppbv	105	103	70	130	1.9	25

Sub-Matrix: **AIR**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
USEPA Air Toxics Method TO15r (QCLot: 2159336) - continued											
EP101-15X: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	ppbv	<0.5	10 ppbv	98.8	96.1	70	130	2.7	25
EP101-15X: Isopropylbenzene	98-82-8	0.5	ppbv	<0.5	10 ppbv	90.3	91.5	70	130	1.3	25
EP101-15X: n-Propylbenzene	103-65-1	0.5	ppbv	<0.5	10 ppbv	95.5	97.2	70	130	1.8	25
EP101-15X: tert-Butylbenzene	98-06-6	0.5	ppbv	<0.5	10 ppbv	86.7	89.3	70	130	2.9	25
EP101-15X: sec-Butylbenzene	135-98-8	0.5	ppbv	<0.5	10 ppbv	90.8	92.0	70	130	1.3	25
EP101-15X: 2-isopropyltoluene	----	0.5	ppbv	<0.5	10 ppbv	86.0	88.2	70	130	2.5	25
EP101-15X: n-Butylbenzene	104-51-8	0.5	ppbv	<0.5	10 ppbv	98.3	101	70	130	3.0	25
EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<0.5	10 ppbv	86.8	91.4	70	130	5.2	25

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ATTACHMENT 4 LABORATORY QCI REPORTS

Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **EN1101834**	Page	: 1 of 5
Client	: ENVIRONMENTAL EARTH SCIENCES	Laboratory	: Environmental Division Newcastle
Contact	: MS ANNE WHINCUP	Contact	: Peter Keyte
Address	: P.O.BOX 2253 FOOTSCRAY VIC, AUSTRALIA 3011	Address	: 5 Rosegum Road Warabrook NSW Australia 2304
E-mail	: awhincup@eesi.biz	E-mail	: peter.keyte@als.com.au
Telephone	: +61 03 9687 1666	Telephone	: 61-2-4968-9433
Facsimile	: +61 03 9687 1844	Facsimile	: +61-2-4968 0349
Project	: STH MELBOURNE GASWORKS	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 21-JUL-2011
Sampler	: ANNE WHINCUP	Issue Date	: 28-JUL-2011
Order number	: ----		
		No. of samples received	: 16
Quote number	: ----	No. of samples analysed	: 16

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers

Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non -volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

Matrix: **AIR**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
USEPA Air Toxics Method TO15r								
Summa Canister								
4989 - DRESSING ROOM,	4780 - THEATRE,	**17-JUL-2011**	**----**	----	----	**28-JUL-2011**	16-AUG-2011	✓
4982 - OFFICE/ADMIN,	4748 - DUPLICATE,							
4974 - VISUAL ARTS 1,	4977 - SCULPTURE STUDIO,							
4768 - VISUAL ARTS 2,	4987 - ARTS & CRAFT STUDIO,							
4772 - CERAMIC STUDIO,	4736 - THEATRE W/SHOP,							
4985 - CAFE,	4981 - BACKGROUND,							
4983 - REHEARSAL ROOM,	4992 - BOOKSHOP							
Summa Canister								
4777 - SPNH - BEDROOM,	4760 - SPNH - COMMUNAL	**18-JUL-2011**	**----**	----	----	**28-JUL-2011**	17-AUG-2011	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **AIR**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Duplicate Control Samples (DCS)							
VOCs in Air by USEPA TO15 - Extended Suite	EP101-15X	1	16	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Duplicates (DUP)							
VOCs in Air by USEPA TO15 - Extended Suite	EP101-15X	2	16	**12.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
VOCs in Air by USEPA TO15 - Extended Suite	EP101-15X	1	16	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
VOCs in Air by USEPA TO15 - Extended Suite	EP101-15X	1	16	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
VOCs in Air by USEPA TO15 - Extended Suite	EP101-15X	AIR	USEPA TO15r Volatile Organic Compounds in Air by USEPA TO15. Extended Suite
VOCs in Air by USEPA TO15 - Extended Suite (mass/volume)	EP101-15X-MV	AIR	USEPA TO15r Volatile Organic Compounds in Air by USEPA TO15. Extended Suite (Calculated Concentration)

Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- **For all matrices, no Method Blank value outliers occur.**
- **For all matrices, no Duplicate outliers occur.**
- **For all matrices, no Laboratory Control outliers occur.**
- **For all matrices, no Matrix Spike outliers occur.**

Regular Sample Surrogates

- **For all regular sample matrices, no surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- **No Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- **No Quality Control Sample Frequency Outliers exist.**

Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **EN1200432**	Page	: 1 of 5
Client	: ENVIRONMENTAL EARTH SCIENCES	Laboratory	: Environmental Division Newcastle
Contact	: MS ANNE WHINCUP	Contact	: Peter Keyte
Address	: P.O.BOX 2253 FOOTSCRAY VIC, AUSTRALIA 3011	Address	: 5 Rosegum Road Warabrook NSW Australia 2304
E-mail	: awhincup@eesi.biz	E-mail	: peter.keyte@als.com.au
Telephone	: +61 03 9687 1666	Telephone	: 61-2-4968-9433
Facsimile	: +61 03 9687 1844	Facsimile	: +61-2-4968 0349
Project	: 210074 STH MELBOURNE GASWORKS	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 03-FEB-2012
Sampler	: ANNE WHINCUP	Issue Date	: 13-FEB-2012
Order number	: ----		
		No. of samples received	: 16
Quote number	: ----	No. of samples analysed	: 16

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers

Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non -volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

Matrix: **AIR**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
USEPA Air Toxics Method TO15r							
Summa Canister (EP101-15X)							
4737 - W. WING RM 1, 4973 - KITCHEN	**01-FEB-2012**	**----**	----	----	**08-FEB-2012**	02-MAR-2012	✓
Summa Canister (EP101-15X)							
4747 - GARDEN STUDIO, 4763 - VISUAL ARTS STUDIO, 4770 - CAFE, 4782 - DRESSING ROOM, 4983 - REHEARSAL, 4740 - THEATRE, 4775 - SCULPTURE STUDIO, 4982 - GATE HOUSE, 4768 - ADMINISTRATION, 4977 - BACKGROUND, 4777 - DUPLICATE 1, 4741 - CERAMICS STUDIO, 4760 - WORKSHOP, 4981 - ARTS & CRAFTS STUDIO	**29-JAN-2012**	**----**	----	----	**08-FEB-2012**	28-FEB-2012	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **AIR**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Duplicate Control Samples (DCS)							
VOCs in Air by USEPA TO15 - Extended Suite	EP101-15X	1	16	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Duplicates (DUP)							
VOCs in Air by USEPA TO15 - Extended Suite	EP101-15X	2	16	**12.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
VOCs in Air by USEPA TO15 - Extended Suite	EP101-15X	1	16	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
VOCs in Air by USEPA TO15 - Extended Suite	EP101-15X	1	16	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Canister Sampling - Field Data	CAN-001	AIR	USEPA TO14 / TO15
VOCs in Air by USEPA TO15 - Extended Suite	EP101-15X	AIR	USEPA TO15r Volatile Organic Compounds in Air by USEPA TO15. Extended Suite
VOCs in Air by USEPA TO15 - Extended Suite (mass/volume)	EP101-15X-MV	AIR	USEPA TO15r Volatile Organic Compounds in Air by USEPA TO15. Extended Suite (Calculated Concentration)

Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- **For all matrices, no Method Blank value outliers occur.**
- **For all matrices, no Duplicate outliers occur.**
- **For all matrices, no Laboratory Control outliers occur.**
- **For all matrices, no Matrix Spike outliers occur.**

Regular Sample Surrogates

- **For all regular sample matrices, no surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- **No Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- **No Quality Control Sample Frequency Outliers exist.**

APPENDIX D WEATHER DATA

Melbourne, Victoria
July 2011 Daily Weather Observations

Most observations from Melbourne, but some from Melbourne Airport.

Australian Government
Bureau of Meteorology

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9am						3pm					
		Min	Max				Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C	mm	mm	hours		km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
1	Fr	8.3	17.3	0	3.0	8.2	N	65	10:09	9.9	69	6	N	33	1030.5	16.7	46	2	N	28	1026.4
2	Sa	8.7	16.5	0	3.6	7.1	N	61	23:36	10.3	64		N	35	1021.9	16.1	44		N	33	1016.4
3	Su	10.3	13.6	0	4.0	0.5	NNW	72	05:10	13.6	53		N	37	1013.2	11.7	73		N	30	1010.6
4	Mo	10.0	15.8	0.2	1.2	5.0	NW	76	13:16	11.8	66	5	NNW	28	1007.1	13.9	49	7	NW	35	1003.2
5	Tu	9.3	12.7	0	3.8	0.9	W	72	12:14	10.7	61	7	WNW	41	1004.7	11.5	65	7	WSW	39	1005.5
6	We	8.9	14.2	1.8	3.8	2.6	NNW	50	11:53	10.9	65	6	N	24	1005.5	13.4	59	7	NW	22	1001.7
7	Th	6.4	11.5	2.4	1.0	4.9	SW	46	12:06	6.7	75	6	W	26	1015.3	11.4	56	7	SW	30	1019.5
8	Fr	6.6	12.5	0	1.4	0.3	W	43	12:45	9.6	62	7	NNW	15	1023.7	12.2	55	7	NW	22	1021.1
9	Sa	8.4	14.8	0	1.4	8.6	W	48	11:44	9.1	67		NW	15	1020.2	14.2	45		W	28	1017.8
10	Su	7.6	13.4	0	2.4	1.2	WNW	63	11:29	10.9	55		NW	26	1011.0	11.4	90		W	39	1010.0
11	Mo	7.4	13.5	3.2	1.8	0.6	W	46	10:26	9.1	76		W	28	1022.3	12.9	55		SW	24	1022.8
12	Tu	9.1	13.6	0	2.4	0.2	W	50	14:47	11.0	64		NW	20	1022.8	13.4	54		W	39	1020.4
13	We	9.7	13.7	0.4	2.6	1.8	WSW	56	13:14	10.5	82		WNW	15	1019.3	11.4	81		WSW	30	1019.1
14	Th	7.3	14.8	7.2	1.0	5.1	S	30	15:33	8.7	90		WSW	17	1029.9	13.5	59		S	20	1031.2
15	Fr	5.4	14.1	0.2	0.8	8.9	N	28	23:57	5.8	95		N	13	1036.7	13.1	56		SSE	9	1033.4
16	Sa	2.8	15.8	0	1.4	6.8	N	41	23:19	4.6	80		N	6	1030.0	14.7	48		N	20	1024.7
17	Su	4.6	14.1	0	1.4	2.5	N	57	11:12	10.7	75		N	30	1020.3	13.2	69		NNE	28	1017.8
18	Mo	9.1	12.8	9.2	1.4	1.8	WSW	30	10:35	9.7	78	6	WNW	11	1017.4	11.7	73	7	WSW	13	1017.2
19	Tu	9.5	16.4	0.6	0.6	1.7				12.6	85	7	SW	19	1022.6	13.9	73	6	S	35	1022.8
20	We	10.4	12.9	0.2	0.0	0.0	SSE	54	09:52	11.2	75	7	SE	30	1027.6	12.5	66	7	SSE	30	1026.6
21	Th	7.8	13.4	0	2.2	0.1	SE	39	16:26	10.4	79	7	S	17	1026.3	13.1	68	7	SE	22	1023.2
22	Fr	8.9	17.5	0.8	0.2	8.8	WNW	20	23:55	9.6	80	1	W	13	1025.2	15.2	56	2	WSW	9	1022.9
23	Sa	5.5	13.0	0	1.4	3.0	N	24	08:15	6.7	90		N	17	1024.4	12.4	64		S	9	1021.1
24	Su	6.7	12.8	3.4	0.4	0.4	N	46	14:26	9.2	90		N	28	1018.1	12.2	70		N	30	1014.9
25	Mo	9.1	14.0	1.8	1.2	1.5	SW	39	16:41	10.3	91	8	N	11	1015.7	13.2	78	6	WSW	19	1015.1
26	Tu	7.9	14.1	5.2	0.8	3.2	WSW	31	10:36	9.3	84	7	W	19	1023.0	13.7	58	7	SW	20	1023.5
27	We	2.7	15.1	0.2	1.0	9.0	NNW	39	13:34	4.6	87		N	17	1029.0	14.1	47		N	24	1026.8
28	Th	4.6	16.0	0.2	2.6	9.4	N	61	09:07	8.4	70	1	N	44	1026.8	15.6	35	2	N	35	1023.6
29	Fr	7.4	17.5	0	4.6	5.9	N	63	08:39	8.4	63	6	N	44	1024.8	16.6	34	5	N	35	1021.7
30	Sa	8.4	15.4	0	4.0	0.3	N	67	07:11	12.6	44		N	43	1019.1	15.3	43		N	37	1015.3
31	Su	10.9	19.4	0.4	2.8	8.6	N	54	00:00	12.5	65		N	30	1017.9	18.3	52		N	33	1015.4
Statistics for July 2011																					
Mean		7.7	14.6		1.9	3.8				9.7	73	5		24	1021.0	13.6	58	5		26	1019.1
Lowest		2.7	11.5		0.0	0.0				4.6	44	1	N	6	1004.7	11.4	34	2	#	9	1001.7
Highest		10.9	19.4	9.2	4.6	9.4	NW	76		13.6	95	8	N	44	1036.7	18.3	90	7	#	39	1033.4
Total				37.4	60.2	118.9															

Temperature, humidity, pressure, cloud and rainfall observations are from Melbourne Regional Office {station 086071}. Wind, evaporation and sunshine observations are from Melbourne Airport {station 086282}

IDCJDW3050.201107 Prepared at 13:03 UTC on 9 Apr 2012

Melbourne, Victoria
January 2012 Daily Weather Observations

Most observations from Melbourne, but some from Melbourne Airport.

Australian Government
Bureau of Meteorology

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9am						3pm					
		Min	Max				Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C	mm	mm	hours		km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
1	Su	18.3	33.9	0	10.6	13.7				22.3	69		NE	7	1014.9	32.8	38		S	24	1011.4
2	Mo	20.1	40.0	0	5.8	12.7	N	61	11:48	29.1	31		N	41	1012.2	38.2	16		N	35	1009.6
3	Tu	23.5	29.8	0	16.2	5.4	W	41	23:43	26.4	59	7	ENE	9	1012.0	26.4	50	7	S	19	1011.1
4	We	18.5	23.0	2.0	7.8	9.7	SW	57	06:02	19.2	67	7	SW	24	1017.1	22.1	41	1	SSE	41	1019.0
5	Th	14.4	21.8	0	8.2	9.5	SSE	44	14:58	16.5	51	7	SSW	11	1019.3	20.1	42	6	SSE	24	1017.6
6	Fr	13.8	24.4	0	6.6	10.8	SSW	43	14:48	17.7	50	3	SE	22	1018.9	23.7	41	2	SSW	22	1014.6
7	Sa	14.8	29.9	0	9.0	5.9	N	69	07:44	22.2	41		N	54	1008.8	29.9	21		NNE	30	1005.1
8	Su	19.5	29.8		6.8	6.5	N	61	23:19	21.9	83		NNW	22	1000.6	27.0	48		W	39	999.6
9	Mo	14.7	24.6	13.2	8.2	11.1	WNW	52	14:51	18.5	46	6	W	31	1009.2	22.5	36	7	W	28	1008.3
10	Tu	13.8	20.1	1.2	8.6	5.8	SW	46	14:32	16.7	49	2	W	26	1011.9	19.6	41	7	W	31	1009.6
11	We	13.0	19.0	2.8	6.0	9.8	WSW	74	07:07	14.5	62	7	WSW	46	1006.8	18.1	42	6	SSW	37	1012.9
12	Th	12.5	21.5	2.6	7.4	4.6	SSE	41	16:48	14.3	66	8	SW	22	1020.3	20.5	53	7	S	24	1019.5
13	Fr	13.3	20.9	0.6	4.8	5.1	S	50	12:05	15.4	69	8	SW	20	1019.5	19.4	47	7	S	30	1019.1
14	Sa	13.8	19.9		5.6	3.3	S	46	15:14	15.4	62		SSW	17	1020.4	19.1	53		SSE	26	1019.7
15	Su	15.1	24.0		4.8	10.0	SE	33	14:13	16.8	60		SSE	13	1020.9	22.2	49		S	20	1018.3
16	Mo	14.6	33.6	0.8	6.6	13.6	N	74	08:15	23.7	47	0	N	52	1018.0	31.3	24	1	N	39	1014.9
17	Tu	23.7	34.3	0	18.4	11.4	N	76	07:27	26.1	41	4	N	56	1016.7	32.8	26	7	N	43	1013.0
18	We	22.4	24.6	0	15.8	10.6	N	61	23:10	22.7	71		WNW	11	1014.0	24.1	56		SSE	20	1015.4
19	Th	15.6	24.0	0	7.0	12.3	S	41	16:31	18.6	59	7	SE	15	1019.6	23.1	52	1	SSE	19	1018.2
20	Fr	16.3	21.5	0	7.0	0.0	SSE	30	15:17	17.6	76	8	S	15	1017.7	19.9	67	8	SSW	15	1016.1
21	Sa	17.4	28.2	0	2.6	5.0	S	48	17:20	19.9	77		SSE	24	1017.1	24.6	64		S	28	1015.5
22	Su	16.8	33.0	0	4.4	13.1	SE	43	17:13	21.0	70		ENE	6	1020.6	32.2	35		ESE	22	1017.8
23	Mo	18.6	33.5	0	11.4	13.3	N	56	07:33	24.1	40	0	N	35	1020.2	33.4	28	1	E	17	1016.4
24	Tu	20.4	35.0	0	12.8	13.3	N	67	07:06	24.4	38	0	N	44	1016.0	33.7	22	3	SSE	24	1012.5
25	We	20.3	25.0	0	11.6	7.3	S	39	14:51	20.8	77	8	S	17	1015.2	23.8	60	2	SSW	17	1014.0
26	Th	16.1	24.5	0	4.4	12.4	S	50	15:10	18.9	67		S	13	1018.5	23.7	55		S	31	1016.9
27	Fr	16.6	30.7		8.0	13.0	SSE	39	17:14	20.5	69		WSW	9	1016.9	26.3	55		SSE	19	1013.5
28	Sa	20.0	30.4		8.2	12.1	SSE	37	17:34	24.1	64		SW	13	1012.7	27.4	55		S	26	1009.2
29	Su	20.5	34.9		9.4	9.2	N	59	20:58	24.6	68		NE	9	1007.1	34.0	33		NNE	15	1000.9
30	Mo	22.3	32.5	2.8	10.8	6.9	SW	74	17:27	23.7	83	7	N	22	992.4	29.5	51	5	NNW	37	990.6
31	Tu	15.1	20.8	3.4	10.4	4.0	SSE	54	10:24	17.4	55	7	SW	20	1012.6	18.4	52	7	S	35	1015.7
Statistics for January 2012																					
Mean		17.3	27.4		8.6	9.1				20.5	60	5		23	1014.5	25.8	43	4		27	1012.8
Lowest		12.5	19.0		2.6	0.0				14.3	31	0	ENE	6	992.4	18.1	16	1	#	15	990.6
Highest		23.7	40.0	13.2	18.4	13.7	N	76		29.1	83	8	N	56	1020.9	38.2	67	8	N	43	1019.7
Total				29.4	265.2	281.4															

Temperature, humidity, pressure, cloud and rainfall observations are from Melbourne Regional Office {station 086071}. Wind, evaporation and sunshine observations are from Melbourne Airport {station 086282}

IDCJDW3050.201201 Prepared at 13:03 UTC on 3 Apr 2012

Melbourne, Victoria
February 2012 Daily Weather Observations

Most observations from Melbourne, but some from Melbourne Airport.

Australian Government
Bureau of Meteorology

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9am						3pm					
		Min	Max				Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C	mm	mm	hours		km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
1	We	12.9	24.5	0	5.8	13.2	SSE	61	14:28	16.6	59	1	SE	30	1017.8	23.8	34	5	SSE	33	1014.2
2	Th	13.7	27.1	0	9.0	11.4	WSW	39	14:02	17.2	66	5	WSW	7	1013.2	25.1	41	5	W	11	1009.2
3	Fr	15.3	27.1	0	6.2	12.3	SSE	33	13:13	18.5	71	7	WSW	13	1008.4	26.1	41	3	SSE	20	1005.5
4	Sa	16.3	32.9		7.4	9.6	N	44	10:50	20.7	65		NNE	20	1003.8	31.7	23		NNW	24	999.8
5	Su	20.7	32.1		13.2	3.9	N	98	10:54	26.9	32		N	44	994.2	30.1	34		WSW	50	991.8
6	Mo	13.5	23.8	6.6	10.6	11.8	SW	56	16:00	15.5	55	1	WSW	24	1007.4	20.4	42	6	SSW	15	1006.6
7	Tu	14.5	22.0	0	6.0	3.8	S	43	15:57	16.4	63	5	WSW	19	1010.9	20.7	43	6	SSE	30	1011.4
8	We	13.7	22.2	0	5.6	11.1	S	48	14:18	17.4	51	5	SW	9	1014.8	21.1	45	5	SSE	30	1014.4
9	Th	12.4	25.2	0	6.4	11.3	SSE	41	17:04	15.6	66	4	SW	15	1013.1	23.4	43	5	W	20	1010.6
10	Fr	15.5	26.9	0	6.2	7.0	S	52	14:51	20.5	71	5	SW	11	1011.4	24.5	52	6	S	30	1010.0
11	Sa	15.6	21.9		8.6	5.6	S	41	15:10	18.5	75		S	15	1013.7	19.6	71		S	24	1013.4
12	Su	15.6	23.7		3.0	8.2	SSE	50	15:53	18.5	70		SSE	17	1017.0	19.6	81		S	28	1016.2
13	Mo	16.8	24.7	7.6	4.4	6.7	SSW	41	14:45	19.6	68	7	SSE	19	1019.7	22.4	64	5	S	26	1018.4
14	Tu	16.0	29.0	0	4.8	10.4	SSE	33	14:35	17.7	80	7	WSW	11	1020.3	27.0	48	2	S	15	1017.3
15	We	17.4	34.0	0	8.4	7.8	N	61	08:28	23.3	57	4	N	44	1016.3	33.1	22	6	NNW	30	1013.0
16	Th	21.9	27.4	0	13.4	4.8	N	46	06:23	22.9	63	7	N	30	1013.8	24.3	61	6	SSE	30	1012.0
17	Fr	18.4	23.9	9.4	4.8	2.5	S	30	18:32	19.0	83	8	S	17	1017.3	22.5	61	6	S	17	1016.0
18	Sa	16.4	26.2		3.2	8.0	SSE	30	10:39	16.9	85		SW	7	1018.0	25.1	57		S	11	1015.1
19	Su	16.9	30.0		4.0	6.4	N	35	11:44	20.1	80		SSW	4	1014.5	28.3	48		E	9	1012.1
20	Mo	19.5	23.9	0	4.6	1.0	S	35	19:27	20.7	72	7	SSE	19	1014.8	22.3	65	7	S	15	1014.4
21	Tu	17.8	24.4	0	4.0	6.6	S	39	17:38	19.5	67	7	SW	15	1015.5	23.0	53	7	SSW	13	1014.2
22	We	14.7	26.1	0	3.4	12.6	SSE	33	16:01	18.1	71	3	WSW	13	1015.9	24.5	51	1	S	19	1015.5
23	Th	16.0	25.8	0	5.8	11.9	SSE	39	13:16	20.1	69	4	WSW	11	1018.7	24.0	61	2	S	24	1018.5
24	Fr	15.0	37.1	0	6.6	12.3	N	39	11:37	19.1	69	1	NE	7	1020.6	35.8	17	1	WNW	15	1017.4
25	Sa	18.8	37.1		14.2	12.7	N	61	07:57	27.9	33		N	44	1017.6	35.3	19		N	28	1015.0
26	Su	24.7	33.2		15.2	10.3	NW	98	19:11	26.8	50		N	44	1013.1	31.3	43		NNE	39	1009.7
27	Mo	21.6	25.1	10.0	11.4	0.0	N	81	23:24	22.0	91	8	N	31	1011.6	22.9	88	7	S	17	1011.9
28	Tu	17.7	21.1	25.6	1.4	0.0	SSE	39	15:33	17.9	91	8	S	11	1015.0	20.4	64	7	SSE	28	1015.2
29	We	16.2	23.3	0.6	2.0	1.5	SSE	31	09:39	19.0	59	7	SSE	17	1015.7	22.4	55	7	SSW	7	1011.7
Statistics for February 2012																					
Mean		16.7	27.0		6.9	7.7				19.8	66	5		19	1013.9	25.2	49	5		22	1012.1
Lowest		12.4	21.1		1.4	0.0				15.5	32	1	SSW	4	994.2	19.6	17	1	SSW	7	991.8
Highest		24.7	37.1	25.6	15.2	13.2	#	98		27.9	91	8	N	44	1020.6	35.8	88	7	WSW	50	1018.5
Total				59.8	199.6	224.7															

Temperature, humidity, pressure, cloud and rainfall observations are from Melbourne Regional Office {station 086071}. Wind, evaporation and sunshine observations are from Melbourne Airport {station 086282}

IDCJDW3050.201202 Prepared at 16:02 UTC on 2 Apr 2012