Stephenson

Environmental Management Australia

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EMISSION TEST REPORT (ETR) NO. 7132/S25525A/21

STYRENE SCRUBBER EFFICIENCY MONITORING

ROCBOLT RESINS PTY LIMITED

SMEATON GRANGE, NSW 2567

PROJECT NO.: **7132/S25525A/21**

DATE OF SURVEY: **21 APRIL 2021**

DATE OF ISSUE: **29 MAY 2021**

EMISSION TEST REPORT NO. 7132/S25525A/21

	The sampling and analysis was commissioned by:	
Client	Organisation:	Rocbolt Resins Pty Limited
	Contact:	Andrew Sykes
	Address:	40-44 Anzac Avenue, Smeaton Grange NSW 2567
	Telephone:	02 4647 8388
	Email:	asykes@rocboltresins.com.au
	Project Number:	7132/S25525A/21
	Test Date:	21 April 2021
	Production Conditions:	Normal operating conditions during testing
	Analysis Requested:	Dry gas density, volumetric flowrate, velocity, temperature, moisture, molecular weight of stack gases and volatile organic compounds including styrene
	Sample Locations:	Styrene dry scrubber exhaust stack
	Sample ID Nos.:	See attachment A
	Identification	The samples are labelled individually. Each label recorded the testing laboratory, sample number, sampling location (or Identification) sampling date and time and whether further analysis is required.

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Test	*Test Method Number for Sampling & Analysis*	*Laboratory Analysis & Report No.*
Dry Gas Density	NSW TM-23, USEPA M3	SEMA, ETR No. 7132
Moisture	NSW TM-22, USEPA M4	SEMA, ETR No. 7132
Molecular Weight of Stack Gases	NSW TM-23, USEPA M3	SEMA, ETR No. 7132
Stack Pressure	NSW TM-2, USEPA M2	SEMA, ETR No. 7132
Stack Temperature	NSW TM-2, USEPA M2	SEMA, ETR No. 7132
Velocity	NSW TM-2, USEPA M2	SEMA, ETR No. 7132
Volatile Organic Compounds (styrene and total as n-Propane)	NSW TM-34, USEPA M18	TestSafe Australia, NATA Accreditation No. 3726, Report No. 2021-2119
Volumetric Flowrate	NSW TM-2, USEPA M2	SEMA, ETR No. 7132

Deviations from Test Methods Nil

Sampling Times NSW - As per Test Method requirements or if not specified in the Test Method then as per Protection of the Environment Operations (Clean Air) Regulations Part 2.

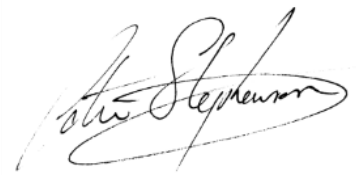
Reference Conditions NSW – As per

(1) Environment Protection Licence conditions, or

(2) Part 3 of the Protection of the Environment Operations (Clean Air) Regulations

All NATA endorsed Test Reports/Certificates of Analysis are provided in Attachment A.

Issue date: 29 May 2021



P W Stephenson
Managing Director

1.1 SCOPE OF WORK

The scope of work undertaken at Rocbolt Resins, Smeaton Grange on April 21, 2021 is tabled below and was requested by Rocbolt Resins to address a requirement of their Environment Protection Licence (EPL) 20944.

Parameter	Styrene Scrubber Exhaust Stack	Units of Measure	NSW Approved Test Method
VOCs including Styrene	2 samples	mg/m^3 or g/s	TM-34
Dry Gas Density	✓	kg/m^2	TM-23
Moisture	✓	%	TM-22
Molecular weight of stack gases	✓	g.g-mole	TM-23
Temperature	✓	^oC	TM-2
Velocity	✓	m/s	TM-2
Volumetric flowrate	✓	m^3/s	TM-2

Key:

kg/m^3	=	kilograms per cubic metre
mg/m^3	=	milligrams per cubic metre at 0^oC and 101.3 kilopascals (kPa)
g/s	=	grams per second
%	=	percentage
g.g-mole	=	grams per gram mole
g/s	=	grams per second
^oC	=	degrees Celsius
TM	=	test method
OM	=	other method
m/s	=	metres per second
m^3/s	=	dry cubic metre per second 0^oC and 101.3 kilopascals (kPa)

1.2 PRODUCTION AND SAMPLING CONDITIONS

Rocbolt Resins personnel considered the manufacturing facility was operating under typical conditions on the day of testing. Details of production conditions are available on request.

The following description of the process information was supplied by Rocbolt Resins,

> *Rocbolt Resins manufactures resin capsules used as reinforcement for rocks/strata in the mining industry in conjunction with steel bolts and cables.*
>
> *The capsules are a 2 part capsule, an outer plastic skin, sealed at both ends with clips and a separate inner compartment.*
>
> *The larger compartment consists of a highly viscous polyester resin mastic paste comprising approximately 20% polyester resin (contains Styrene monomer) & 80% inert limestone fillers.*
>
> *The smaller compartment consists of catalyst containing inert limestone fillers, benzoyl peroxide paste and oil or water as the carrier.*
>
> *The ratio of the two compartment ranges from 80:20 to 93:7 by weight.*

1.3 SUMMARY OF EMISSION TEST RESULTS – 21 APRIL 2021

Parameter		Unit of measure	Average Measured Concentrations 21 April 2021 Activated Carbon Dry Scrubber Exhaust Stack	EPL Licence 20944 Limit
Styrene	(as Styrene)	mg/m³	2.46	220
	(as n-propane)	mg/m³	1.04	--
	MER (as Styrene)	g/s	0.00071	--
VOC	(uncorrected)	mg/m³	4.92	--
	(as n- propane)	mg/m³	2.90	--
	MER (as n- propane)	g/s	0.0014	--
Stack temperature		°C	20	--
Velocity		m/s	4.4	--
Volumetric flow		m³/s	0.29	--
Moisture		%	0.8	--
Molecular weight dry stack gas		g/g mole	28.9	--
Gas Density		kg/m³	1.3	--
Stack pressure		kPa	101.3	--

Key:

EPL	=	Environment Protection Licence
MER	=	Mass Emission Rate
VOC	=	Volatile organic compounds
mg/m³	=	milligrams per cubic metre at 0°C and 101.3 kilopascals (kPa)
g/s	=	grams per second
°C	=	degrees Celsius
m/s	=	metres per second
m³/s	=	dry cubic metre per second 0°C and 101.3 kilopascals (kPa)
%	=	percentage
<	=	less than
g/g mole	=	grams per gram mole
kg/m³	=	Kilograms per cubic metre
kPa	=	Kilo Pascals
--	=	not specified in EPL 20944

1.4 ESTIMATED UNCERTAINTY OF MEASUREMENT

Pollutant	Methods	Uncertainty
Moisture	AS4323.2, NSW TM-22, USEPA 4	25%
Oxygen	NSW TM-24, USEPA M3A	1% actual
Velocity	AS4323.1, NSW TM-2, USEPA 2	5%
Volatile Organic Compounds (adsorption tube)	NSW TM-34, USEPA M18	25%
Styrene as Volatile Organic Compound (adsorption tube)	NSW TM-34, USEPA M18	25%

Key:

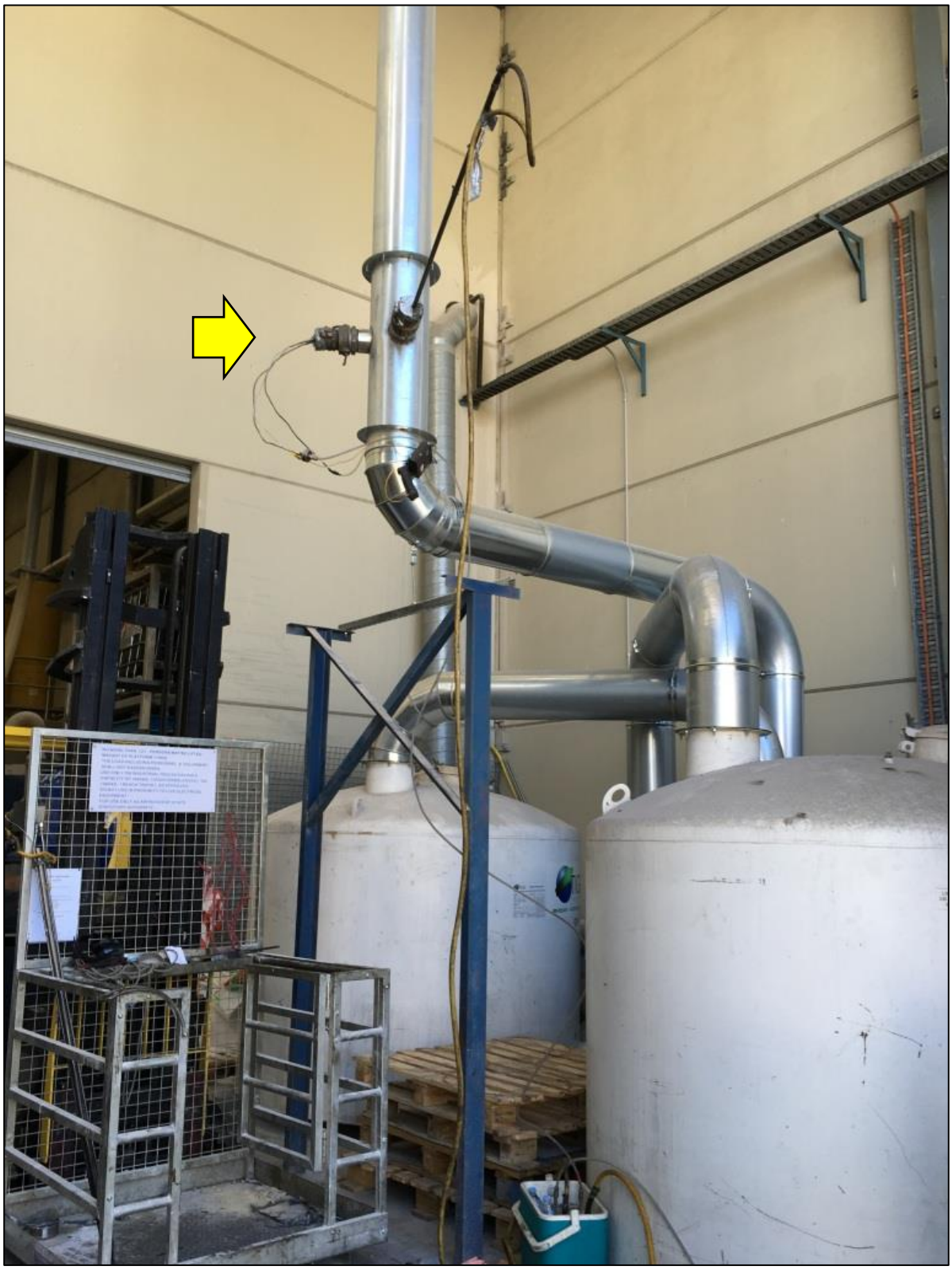
Unless otherwise indicated the uncertainties quoted have been determined @ 95% level of Confidence level (i.e. by multiplying the repeatability standard deviation by a co-efficient equal to 1.96) (Source – Measurement Uncertainty)

Sources: *Measurement Uncertainty – implications for the enforcement of emission limits by Maciek Lewandowski (Environment Agency) & Michael Woodfield (AEAT) UK*

Technical Guidance Note (Monitoring) M2 Monitoring of stack emissions to air Environment Agency Version 3.1 June 2005.

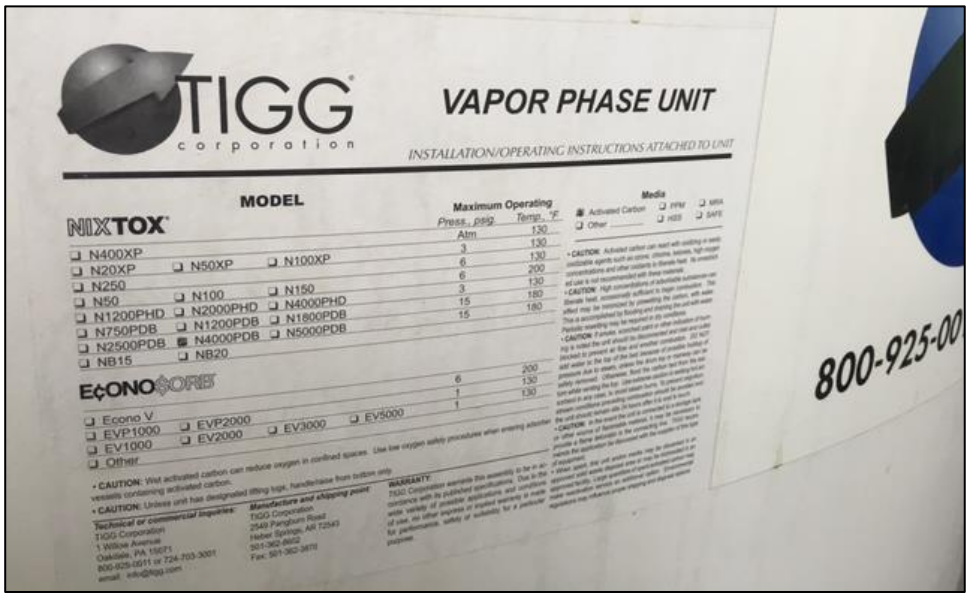
1.5 DRY SCRUBBER SAMPLING LOCATIONS

PHOTOGRAPH 1 DRY CARBON SCRUBBERS AND OUTLET SAMPLE PORTS



PHOTOGRAPH 2 VARIABLE SPEED FAN EXTRACTING AIR FROM WITHIN PLANT TO SCRUBBER TOWERS IN SERIES

PHOTOGRAPH 3 DRY SCRUBBER MANUFACTURER'S DETAILS



1.6 INSTRUMENT CALIBRATION DETAILS

SEMA Asset No.	Equipment Description	Date Last Calibrated	Calibration Due Date
857	Digital Temperature Reader	02-Dec-20	02-Jun-21
769	Thermocouple	02-Dec-20	02-Jun-21
815	Digital Manometer	06-Dec-20	06-Dec-21
613	Barometer	05-Dec-20	05-Dec-21
726	Pitot	17-Feb-21	17-Feb-2022 Visually inspected On-Site before use
834	SKC PCXR Sampling Pump	26-Feb-21	26-Feb-22
24	SKC PCXR Sampling Pump	04-Feb-21	04-Feb-22

1.7 CONCLUSIONS

Emissions were monitored on April 21, 2021 on the discharge side of the two dry carbon scrubbing units connected in series at the Rocbolt Resins manufacturing facility with the following result:

- The average Styrene emission concentration (reported as Styrene) was 2.46 mg/m^3 which is in compliance with the EPL limit of 220 mg/m^3;
- Styrene mass emission rate was 0.0007 g/s.
- The average total VOC mass emission rate (reported as n-propane) was 0.0014 g/s with styrene and acetone being the major contributing volatile organic compounds;
- Rocbolt Resins advised that the variable speed extraction fan serving the scrubber system was running at its normal set point (20 Hertz) during the emission control system efficiency testing. This is of the order of 50% of total flow;
- However, the fan speed is variable depending on demand for fume extraction within the plant. Rocbolt Resins advise that this is both an energy conservation and scrubber efficiency optimisation policy.

ATTACHMENT A – NATA CERTIFICATES OF ANALYSIS

NSW GOVERNMENT | SafeWork NSW

Test Safe AUSTRALIA

Peter Stephenson
Stephenson Environmental Management Australia
PO Box 6398
SILVERWATER NSW 1811

Lab. Reference: 2021-2119

Samples analysed as received

SAMPLE ORIGIN: Project No. 7132

DATE OF INVESTIGATION: 21/04/2021 **DATE RECEIVED:** 5/05/21

ANALYSIS REQUIRED: Volatile Organic Compounds

REPORT OF ANALYSIS

See attached sheet(s) for sample description and test results.

The results of this report have been approved by the signatory whose signature appears below.

For all administrative or account details please contact the Laboratory.

Increment and total pagination can be seen on the following pages.

Martin Mazereeuw
Manager

Date: 11/05/21

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ABN 81 913 830 179

ilac-MRA NATA

Accreditation No. 3726

Accredited for compliance with ISO/IEC 17025 - Testing

NSW GOVERNMENT | SafeWork NSW

Test Safe AUSTRALIA

Analysis of Volatile Organic Compounds in Workplace Air by GC/MS

Client: Stephenson
Sample ID: 728192

Date Sampled 21/04/2021
Date Analysed 10/05/2021
Reference Number 2021-2119-1

No	Compounds	CAS No	Front µg/section	Back µg/section	No	Compounds	CAS No	Front µg/section	Back µg/section
	Aliphatic hydrocarbons (LOQ = 5µg/compound/section)					**Aromatic hydrocarbons** (LOQ = 1µg/compound/section)			
1	2-Methylbutane	78-78-4	<LOQ	<LOQ	39	Benzene	71-43-2	<LOQ	<LOQ
2	n-Pentane	109-66-0	<LOQ	<LOQ	40	Ethylbenzene	100-41-4	<LOQ	<LOQ
3	2-Methylpentane	107-83-5	<LOQ	<LOQ	41	Isopropylbenzene	98-82-8	<LOQ	<LOQ
4	3-Methylpentane	96-14-0	<LOQ	<LOQ	42	1,2,3-Trimethylbenzene	526-73-8	<LOQ	<LOQ
5	Cyclopentane	287-92-3	<LOQ	<LOQ	43	1,2,4-Trimethylbenzene	95-63-6	<LOQ	<LOQ
6	Methylcyclopentane	96-37-7	<LOQ	<LOQ	44	1,3,5-Trimethylbenzene	108-67-8	<LOQ	<LOQ
7	2,3-Dimethylpentane	565-59-3	<LOQ	<LOQ	45	Styrene	100-42-5	15	<LOQ
8	n-Hexane	110-54-3	<LOQ	<LOQ	46	Toluene	108-88-3	<LOQ	<LOQ
9	3-Methylhexane	589-34-4	<LOQ	<LOQ	47	p-Xylene &/or m-Xylene	106-42-3 & 108-38-3	<LOQ	<LOQ
10	Cyclohexane	110-82-7	<LOQ	<LOQ	48	o-Xylene	95-47-6	<LOQ	<LOQ
11	Methylcyclohexane	108-87-2	<LOQ	<LOQ		**Ketones** (LOQ #49, #54 & #55 =5µg/c/s; #50, #51, #52 & #53 =25µg/c/s)			
12	2,2,4-Trimethylpentane	540-84-1	<LOQ	<LOQ	49	Acetone	67-64-1	15	<LOQ
13	n-Heptane	142-82-5	<LOQ	<LOQ	50	Acetoin	513-86-0	<LOQ	<LOQ
14	n-Octane	111-65-9	<LOQ	<LOQ	51	Diacetone alcohol	123-42-2	<LOQ	<LOQ
15	n-Nonane	111-84-2	<LOQ	<LOQ	52	Cyclohexanone	108-94-1	<LOQ	<LOQ
16	n-Decane	124-18-5	<LOQ	<LOQ	53	Isophorone	78-59-1	<LOQ	<LOQ
17	n-Undecane	1120-21-4	<LOQ	<LOQ	54	Methyl ethyl ketone (MEK)	78-93-3	<LOQ	<LOQ
18	n-Dodecane	112-40-3	<LOQ	<LOQ	55	Methyl isobutyl ketone (MIBK)	108-10-1	<LOQ	<LOQ
19	n-Tridecane	629-50-5	<LOQ	<LOQ		**Alcohols** (LOQ = 25µg/compound/section)			
20	n-Tetradecane	629-59-4	<LOQ	<LOQ	56	Ethyl alcohol	64-17-5	<LOQ	<LOQ
21	α-Pinene	80-56-8	<LOQ	<LOQ	57	n-Butyl alcohol	71-36-3	<LOQ	<LOQ
22	β-Pinene	127-91-3	<LOQ	<LOQ	58	Isobutyl alcohol	78-83-1	<LOQ	<LOQ
23	D-Limonene	138-86-3	<LOQ	<LOQ	59	Isopropyl alcohol	67-63-0	<LOQ	<LOQ
	Chlorinated hydrocarbons (LOQ = 5µg/compound/section)				60	2-Ethyl hexanol	104-76-7	<LOQ	<LOQ
24	Dichloromethane	75-09-2	<LOQ	<LOQ	61	Cyclohexanol	108-93-0	<LOQ	<LOQ
25	1,1-Dichloroethane	75-34-3	<LOQ	<LOQ		**Acetates** (LOQ = 25µg/compound/section)			
26	1,2-Dichloroethane	107-06-2	<LOQ	<LOQ	62	Ethyl acetate	141-78-6	<LOQ	<LOQ
27	Chloroform	67-66-3	<LOQ	<LOQ	63	n-Propyl acetate	109-60-4	<LOQ	<LOQ
28	1,1,1-Trichloroethane	71-55-6	<LOQ	<LOQ	64	n-Butyl acetate	123-86-4	<LOQ	<LOQ
29	1,1,2-Trichloroethane	79-00-5	<LOQ	<LOQ	65	Isobutyl acetate	110-19-0	<LOQ	<LOQ
30	Trichloroethylene	79-01-6	<LOQ	<LOQ		**Ethers** (LOQ = 25µg/compound/section)			
31	Carbon tetrachloride	56-23-5	<LOQ	<LOQ	66	Ethyl ether	60-29-7	<LOQ	<LOQ
32	Perchloroethylene	127-18-4	<LOQ	<LOQ	67	*tert*-Butyl methyl ether (MTBE)	1634-04-4	<LOQ	<LOQ
33	1,1,2,2-Tetrachloroethane	79-34-5	<LOQ	<LOQ	68	Tetrahydrofuran (THF)	109-99-9	<LOQ	<LOQ
34	Chlorobenzene	108-90-7	<LOQ	<LOQ		**Glycols** (LOQ = 25µg/compound/section)			
35	1,2-Dichlorobenzene	95-50-1	<LOQ	<LOQ	69	PGME	107-98-2	<LOQ	<LOQ
36	1,4-Dichlorobenzene	106-46-7	<LOQ	<LOQ	70	Ethylene glycol diethyl ether	629-14-1	<LOQ	<LOQ
	Miscellaneous (LOQ #37= 5µg & #38=25µg/compound/section)				71	PGMEA	108-65-6	<LOQ	<LOQ
37	Acetonitrile	75-05-8	<LOQ	<LOQ	72	Cellosolve acetate	111-15-9	<LOQ	<LOQ
38	n-Vinyl-2-pyrrolidinone	88-12-0	<LOQ	<LOQ	73	DGMEA	112-15-2	<LOQ	<LOQ
	Extra compound (LOQ = 25µg/compound/section)					**Extra compound** (LOQ = 25µg/compound/section)			
74	Bromopropane *	106-94-5	<LOQ	<LOQ	75	Naphthalene *	91-20-3	<LOQ	<LOQ
	Total VOCs (LOQ =50µg/compound/section)		<LOQ	<LOQ		Worksheet check			2021-2119-1

2021-2119 Page 2 of 4

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ilac-MRA NATA

Accreditation No. 3726

Accredited for compliance with ISO/IEC 17025 - Testing

SW08051 0817

NSW GOVERNMENT | SafeWork NSW

Test Safe AUSTRALIA

Analysis of Volatile Organic Compounds in Workplace Air by GC/MS

Client: Stephenson
Sample ID: 728193

Date Sampled 21/04/2021
Date Analysed 10/05/2021
Reference Number 2021-2119-2

No	Compounds	CAS No	Front µg/section	Back µg/section	No	Compounds	CAS No	Front µg/section	Back µg/section
	Aliphatic hydrocarbons (LOQ = 5µg/compound/section)					**Aromatic hydrocarbons** (LOQ = 1µg/compound/section)			
1	2-Methylbutane	*78-78-4*	<LOQ	<LOQ	39	Benzene	*71-43-2*	<LOQ	<LOQ
2	n-Pentane	*109-66-0*	<LOQ	<LOQ	40	Ethylbenzene	*100-41-4*	<LOQ	<LOQ
3	2-Methylpentane	*107-83-5*	<LOQ	<LOQ	41	Isopropylbenzene	*98-82-8*	<LOQ	<LOQ
4	3-Methylpentane	*96-14-0*	<LOQ	<LOQ	42	1,2,3-Trimethylbenzene	*526-73-8*	<LOQ	<LOQ
5	Cyclopentane	*287-92-3*	<LOQ	<LOQ	43	1,2,4-Trimethylbenzene	*95-63-6*	<LOQ	<LOQ
6	Methylcyclopentane	*96-37-7*	<LOQ	<LOQ	44	1,3,5-Trimethylbenzene	*108-67-8*	<LOQ	<LOQ
7	2,3-Dimethylpentane	*565-59-3*	<LOQ	<LOQ	45	Styrene	*100-42-5*	11	<LOQ
8	n-Hexane	*110-54-3*	<LOQ	<LOQ	46	Toluene	*108-88-3*	<LOQ	<LOQ
9	3-Methylhexane	*589-34-4*	<LOQ	<LOQ	47	p-Xylene &/or m-Xylene	*106-42-3 &/ 108-38-3*	<LOQ	<LOQ
10	Cyclohexane	*110-82-7*	<LOQ	<LOQ	48	o-Xylene	*95-47-6*	<LOQ	<LOQ
11	Methylcyclohexane	*108-87-2*	<LOQ	<LOQ		**Ketones** (LOQ #49, #54 & #55 =5µg/c/s; #50, #51, #52 & #53 =25µg/c/s)			
12	2,2,4-Trimethylpentane	*540-84-1*	<LOQ	<LOQ	49	Acetone	*67-64-1*	14	<LOQ
13	n-Heptane	*142-82-5*	<LOQ	<LOQ	50	Acetoin	*513-86-0*	<LOQ	<LOQ
14	n-Octane	*111-65-9*	<LOQ	<LOQ	51	Diacetone alcohol	*123-42-2*	<LOQ	<LOQ
15	n-Nonane	*111-84-2*	<LOQ	<LOQ	52	Cyclohexanone	*108-94-1*	<LOQ	<LOQ
16	n-Decane	*124-18-5*	<LOQ	<LOQ	53	Isophorone	*78-59-1*	<LOQ	<LOQ
17	n-Undecane	*1120-21-4*	<LOQ	<LOQ	54	Methyl ethyl ketone (MEK)	*78-93-3*	<LOQ	<LOQ
18	n-Dodecane	*112-40-3*	<LOQ	<LOQ	55	Methyl isobutyl ketone (MIBK)	*108-10-1*	<LOQ	<LOQ
19	n-Tridecane	*629-50-5*	<LOQ	<LOQ		**Alcohols** (LOQ = 25µg/compound/section)			
20	n-Tetradecane	*629-59-4*	<LOQ	<LOQ	56	Ethyl alcohol	*64-17-5*	<LOQ	<LOQ
21	α-Pinene	*80-56-8*	<LOQ	<LOQ	57	n-Butyl alcohol	*71-36-3*	<LOQ	<LOQ
22	β-Pinene	*127-91-3*	<LOQ	<LOQ	58	Isobutyl alcohol	*78-83-1*	<LOQ	<LOQ
23	D-Limonene	*138-86-3*	<LOQ	<LOQ	59	Isopropyl alcohol	*67-63-0*	<LOQ	<LOQ
	Chlorinated hydrocarbons (LOQ = 5µg/compound/section)				60	2-Ethyl hexanol	*104-76-7*	<LOQ	<LOQ
24	Dichloromethane	*75-09-2*	<LOQ	<LOQ	61	Cyclohexanol	*108-93-0*	<LOQ	<LOQ
25	1,1-Dichloroethane	*75-34-3*	<LOQ	<LOQ		**Acetates** (LOQ = 25µg/compound/section)			
26	1,2-Dichloroethane	*107-06-2*	<LOQ	<LOQ	62	Ethyl acetate	*141-78-6*	<LOQ	<LOQ
27	Chloroform	*67-66-3*	<LOQ	<LOQ	63	n-Propyl acetate	*109-60-4*	<LOQ	<LOQ
28	1,1,1-Trichloroethane	*71-55-6*	<LOQ	<LOQ	64	n-Butyl acetate	*123-86-4*	<LOQ	<LOQ
29	1,1,2-Trichloroethane	*79-00-5*	<LOQ	<LOQ	65	Isobutyl acetate	*110-19-0*	<LOQ	<LOQ
30	Trichloroethylene	*79-01-6*	<LOQ	<LOQ		**Ethers** (LOQ = 25µg/compound/section)			
31	Carbon tetrachloride	*56-23-5*	<LOQ	<LOQ	66	Ethyl ether	*60-29-7*	<LOQ	<LOQ
32	Perchloroethylene	*127-18-4*	<LOQ	<LOQ	67	*tert*-Butyl methyl ether (MTBE)	*1634-04-4*	<LOQ	<LOQ
33	1,1,2,2-Tetrachloroethane	*79-34-5*	<LOQ	<LOQ	68	Tetrahydrofuran (THF)	*109-99-9*	<LOQ	<LOQ
34	Chlorobenzene	*108-90-7*	<LOQ	<LOQ		**Glycols** (LOQ = 25µg/compound/section)			
35	1,2-Dichlorobenzene	*95-50-1*	<LOQ	<LOQ	69	PGME	*107-98-2*	<LOQ	<LOQ
36	1,4-Dichlorobenzene	*106-46-7*	<LOQ	<LOQ	70	Ethylene glycol diethyl ether	*629-14-1*	<LOQ	<LOQ
	Miscellaneous (LOQ #37= 5µg & #38=25µg/compound/section)				71	PGMEA	*108-65-6*	<LOQ	<LOQ
37	Acetonitrile	*75-05-8*	<LOQ	<LOQ	72	Cellosolve acetate	*111-15-9*	<LOQ	<LOQ
38	n-Vinyl-2-pyrrolidinone	*88-12-0*	<LOQ	<LOQ	73	DGMEA	*112-15-2*	<LOQ	<LOQ
	Extra compound (LOQ = 25µg/compound/section)					**Extra compound** (LOQ = 25µg/compound/section)			
74	Bromopropane *	*106-94-5*	<LOQ	<LOQ	75	Naphthalene *	*91-20-3*	<LOQ	<LOQ
	Total VOCs (LOQ =50µg/compound/section)		<LOQ	<LOQ		Worksheet check			2021-2119-2

2021-2119

TestSafe Australia – Chemical Analysis Branch
ABN 81 913 830 179 Level 2, Building 1, 9–15 Chilvers Road, Thornleigh, NSW 2120, Australia
Telephone +61 2 9473 4000 Email lab@safework.nsw.gov.au Website testsafe.com.au

ilac-MRA NATA

Accreditation No. 3726

Accredited for compliance with ISO/IEC 17025 - Testing

SW08051 0817

NSW GOVERNMENT | SafeWork NSW

Test Safe AUSTRALIA

Analysis of Volatile Organic Compounds in Workplace Air by GC/MS

All compounds (numbered 1-73) that are reported in the analysis are covered within the scope of NATA accreditation. Any additional compounds attonated with * are not covered by NATA accreditation.

Method : WCA.207 Analysis of Volatile Organic Compounds in Workplace Air by Gas Chromatography/Mass Spectrometry

Limit of Quantitation (LOQ) : 5µg/section; 25µg/section for oxygenated hydrocarbons except acetone, MEK and MIBK at 5µg/section and aromatic hydrocarbons at 1µg/section.

Method Description : Volatile organic compounds were trapped from the workplace air onto charcoal tubes by the use of a personal air monitoring pump. The volatile organic compounds were desorbed from the charcoal in the laboratory with CS_2. An aliquot of the desorbant was analysed by gas chromatography with mass spectrometry detection.

PGME: Propylene Glycol Monomethyl Ether
PGMEA: Propylene Glycol Monomethyl Ether Acetate
DGMEA: Diethylene Glycol Monoethyl Ether Acetate

Measurement Uncertainty : The measurement uncertainty is an estimate that characterises the range of values within which the true value is asserted to lie. The uncertainty estimate is an expanded uncertainty using a coverage factor of 2, which gives a level of confidence of approximately 95%. The estimate is compliant with the "ISO Guide to the Expression of Uncertainty in Measurement" and is a full estimate based on in-house method validation and quality control data. The measurement uncertainty relates to the analysis of the analyte on the sampling device and does not take into consideration the sampling parameters such as pump flowrate, time, temperature and pressure. The measurement of uncertainty estimates are available upon request.

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Accreditation No. 3726

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