Licence Compliance Emission Testing Report - 2023

Jamestrong Packaging - Australia

19 October 2023

Office 1, Level 2 • 335 Wharf Road • Newcastle NSW 2300 • Telephone 02 4926 4222 • Facsimile 02 4929 4944 • ABN 21 089 600 019 • ACN 089 600 019

Licence Compliance Emission Testing Report - 2023

Jamestrong Packaging - Australia

19 October 2023

MJM Environmental Pty Ltd
ABN 21 089 600 019
Office 1, Level 2
355 Wharf Road
Newcastle, NSW, 2300
Telephone: 02 4926 4222
Facsimile: 02 4929 4944
E-mail: enquiries@mjmenvironmental.com.au

Document Control						
Project ID	Revision	Author	Reviewer	Position	Signature	Date
164-2441	0	H Riddell	M Majerowski	Technical Director Environment	Monica Majerowski	19-10-2023

Approved for Issue			
Name	Position	Signature	Date
M Majerowski	Technical Director Environment	Monica Majerowski	19-10-2023

Table of Contents

List of Figures

List of Tables

1 Introduction

MJM Environmental was commissioned by Jamestrong Packaging - Australia to conduct stationary air monitoring on the 19th of September 2023. Jamestrong Packaging - Australia is licensed with the NSW Environment Protection Authority (EPA) under Environment Protection Licence (EPL) number 11714.

The monitoring was performed at the following locations for the pollutants presented in Table 1-1.

Table 1-1: Monitoring performed at Jamestrong Packaging - Australia

EPL Point ID	Point Description	Pollutant	Emission Concentration Limit [1]
3	Wet Separator	Volatile Organic Compounds	20 mg/m^3
		Velocity	-
		Volumetric flow rate	-
		Temperature	-
		Moisture	-
		Odour	-
-	Deco Area Stack	Volatile Organic Compounds	20 mg/m^3
		Velocity	-
		Volumetric flow rate	-
		Temperature	-
		Odour	-
4	RTO	Volatile Organic Compounds	20 mg/m^3
		Velocity	-
		Volumetric flow rate	-
		Temperature	-
		Moisture	-
		Odour	-

[1] In accordance with the *Protection of the Environment Operations (Clean Air) Regulation 2010* (POEO Regulation)

2 Methodology

Table 2-1 summarises the test methods performed at Jamestrong Packaging - Australia.

Table 2-1: Test methods

Parameter	Sampling Method	Reference Method	Unit	Uncertainty %
Volatile Organic Compounds (VOC)	TM-34	USEPA Method 18	mg/m^3	2.14
Volumetric Flow Rate (2D Pitot)	TM-2	USEPA Method 2	m^3/s	3.6
Temperature	TM-2	USEPA Method 2	^0C	0.65
Velocity	TM-2	USEPA Method 2	m/s	3.6
Moisture	TM-22	USEPA Method 4	%	1.46
Odour	OM-7	AS 4323.3	OU	2.87

[1] Measurement of Uncertainty (MU) values cited in this table are calculated at the 95% confidence level (coverage factor = 2) including both sampling and laboratory analytical factors.

A minimum of three sampling runs were undertaken to provide a suitable characterisation of the emissions during normal operations.

Sampling was conducted when plant's process conditions were representative of normal operations.

2.1 Production Plant Process Operations

Jamestrong operates a manufacturing facility at 2 Hallstrom Avenue, Taree NSW. The site manufactures aluminium aerosol and beverage cans for chemical, pharmaceutical, beverage, and other related industries. The facility produces on average 100 million aerosol cans per year and consists of 3 operating lines which use aluminium slugs to stamp aluminium cans.

Lines 1, 2, and 3 produce aluminium; aerosol cans, beverage cans and pharmaceutical cans. Figure 2-1 provides Jamestrong's process flow diagram.

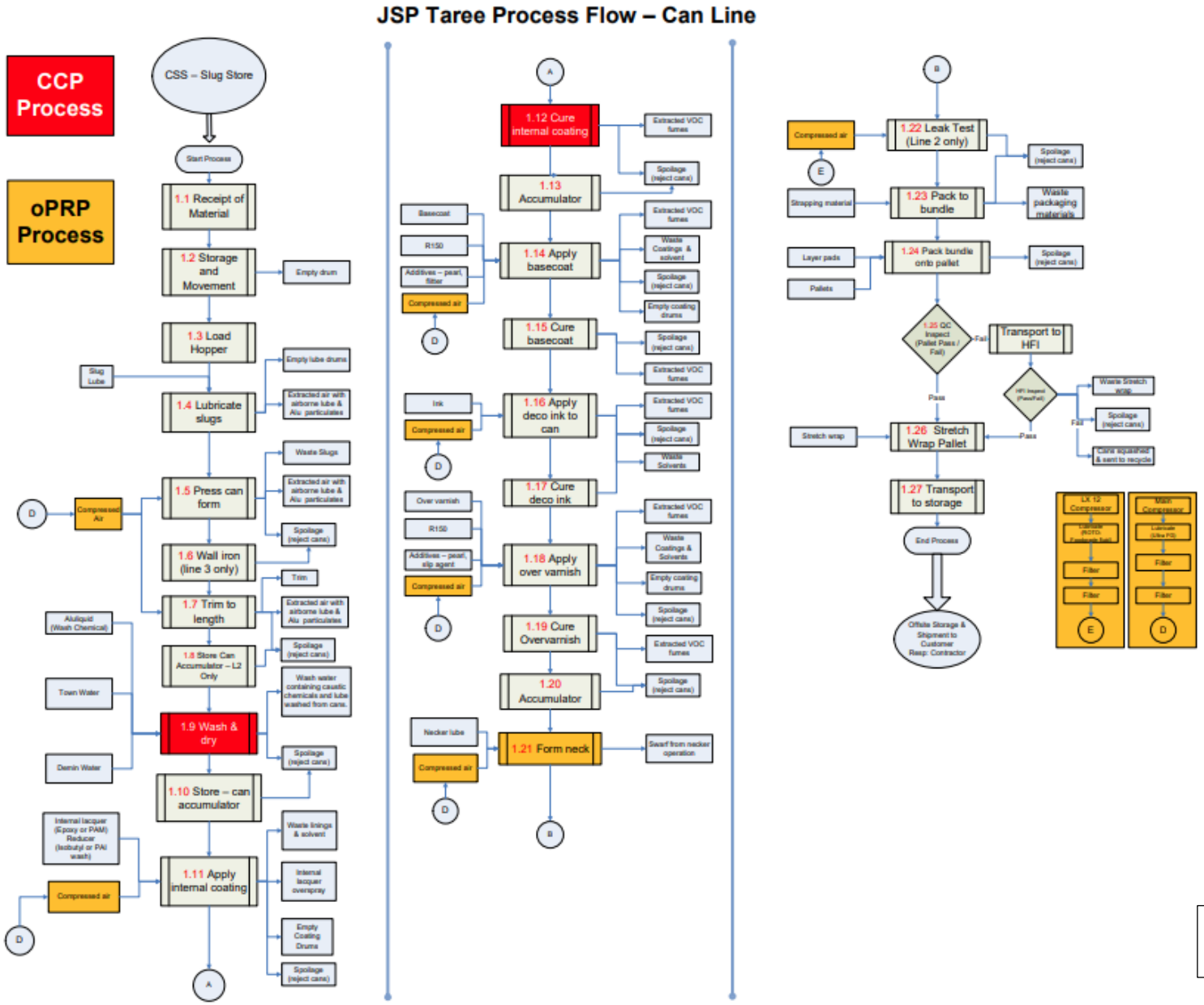


Figure 2-1; Process Flow Diagram

On Site Slug Deboxing & Storage

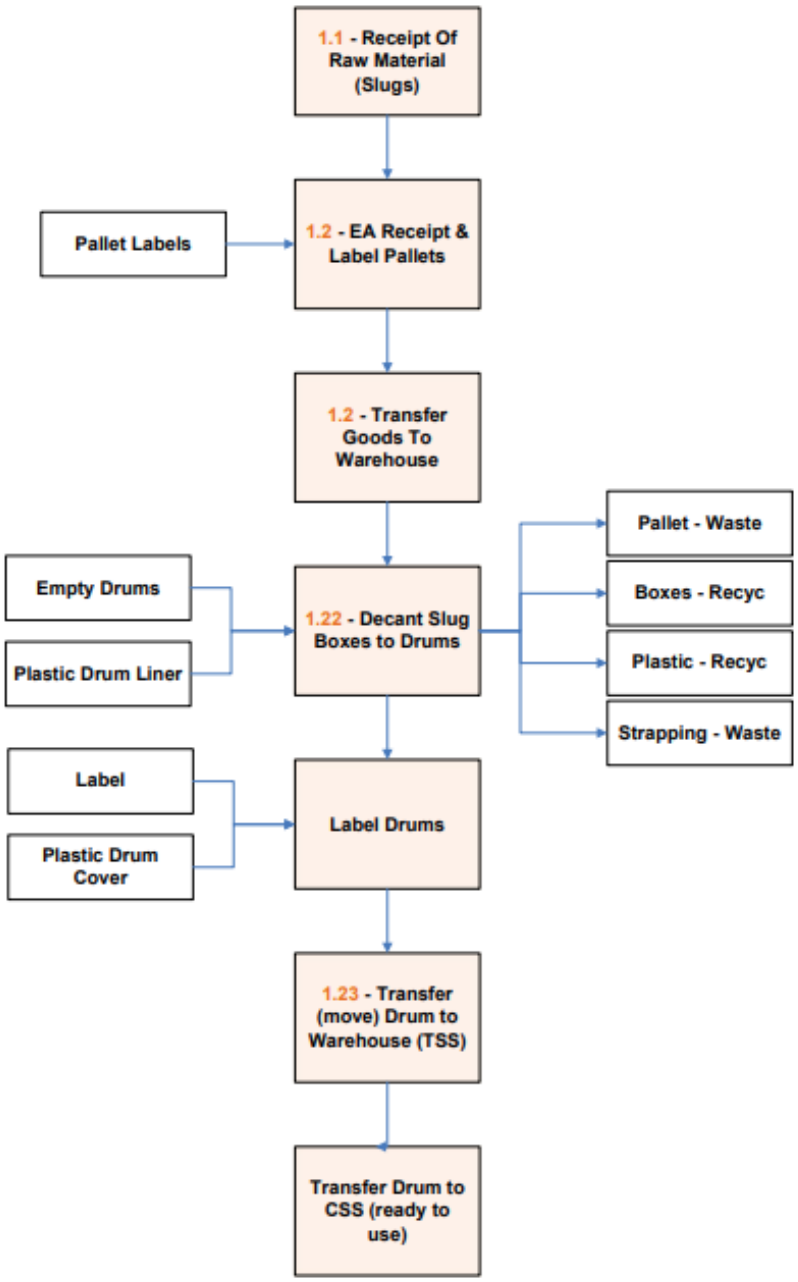


Figure 2-1: Process Flow Diagram continued

Table 2-2 provides the operating rates of line 1, 2, and 3 at the time of sampling, which is in line with normal operations.

Table 2-2: Production Line Operating Rates

Product Line	Can Size / Spec Manufactured During Sample Period	Sample Period Start / Stop Time	Considered Normal Operations (cans/minute)	Production Rate at time of sampling (cans/min)	Cans Produced During Sampling Period	Line OEE During Test Period	Aluminium Used (kg)	Internal Lining Type	Internal Lining Used (kg)	Basecoat External Coating Type	Basecoat External Coating Used (kg)	Ink Used (kg)	Over varnish External Coating Type	Over varnish External Coatings Used (kg)	Considered Normal Operations
Line 1 producing aluminium aerosol cans	45x190 Taft Mouse	**VOC's:** 9:57 – 12:22 **Odour:** 12:37 – 14:50	125	125	19848	81%	696.446472	PPG PAI	15.739464	PPG Clear	8.4354	1.9848	PPG Gloss	9.924	Yes
Line 2 producing aluminium aerosol cans	53x171 Gillette Shave Foam		135	125	13440	51%	500.72064	PPG Epoxy	13.0368	PPG White	13.1712	1.344	PPG Gloss	5.376	Yes
Line 3 produces aluminium aerosol cans	50x190 Dove Apple		135	135	10865	41%	392.68283	PPG Epoxy	10.865	PPG White	10.6477	1.0865	PPG Semi Matt	4.346	Yes
Trade waste Treatment Plant Discharge	-		-	135 kl/day	11.2 kL	-	-	-	-	-	-	-	-	-	Yes
Ink type	Akso Nobel Diaflex														Yes
Comments	Line 1: Better than normal output, few stops, No Changeovers Line 2: Number minor stoppages during sampling, No Changeovers - normal prod Line 3: Number minor stoppages during sampling, No Changeovers - normal prod Trade waste - Total waste water discharge across sampling period														

Auxiliary equipment to the production lines were also in normal operation at the time of sampling, which included the Trade waste treatment system.

In order to verify the plant's operation during the monitoring, the above tables and following slides were collected as evidence provided by Jamestrong.

3 Quality Assurance / Quality Control Information

MJM Environmental performed stack emission testing in accordance with the *Protection of the Environment Operations (Clean Air) Regulation 2021*, and the EPA's *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.

Volatile Organic Compound samples were submitted for analysis to Australian Laboratory Services (ALS), a NATA accredited laboratory with accreditation No. 825 located at Mayfield West, 2304.

Odour samples were submitted for analysis to Odour Unit Laboratory, a NATA accredited laboratory with accreditation No. 14974.

4 Results

A summary of the results obtained for Jamestrong Packaging - Australia are provided in the following sections of the report. Emission concentrations and emission rates are converted to standard conditions (STP) of 0°C, dry gas and 1 atmosphere pressure for comparison with appropriate guideline levels.

4.1 EPL Point 3

Figure 4-1 shows EPL Point 3 – Wet Separator Stack outlet.

Figure 4-1: EPL Point 3 (Wet Separator Stack)

Table 4-1 shows the testing information for the sampling plane.

Table 4-1: Sampling plane information EPL Point 3

Parameter	Unit	Information	Comments
Date	-	19/09/2023	
Number of sampling runs performed	-	2	1x VOC sample run 1x Odour sample run
Sampling duration Odour VOC	Minutes per run	 30 30	
Process conditions at time of sampling	-	Steady state	
Sample plane diameter	mm	900	
Sample plane area	m^2	0.64	
Sample port diameter and depth	mm	110, 85	
Number of sample ports	-	2	
Duct orientation and shape	-	Vertical, circular	
Number of traverse points sampled	-	12	
Sample port compliant with AS4323.1	-	No	Does not satisfy the requirements of AS 4323.1-1995 with regard to upstream and downstream distances from disturbances.

Table 4-2 shows the volumetric and continuous gaseous parameters measured during testing.

Table 4-2: Results for EPL Point 3 - General

Parameter	Unit	Result	EPL Limit	Compliant with EPL
Temperature	°C	28.3	N/A	N/A
Carbon dioxide	%	0.0	N/A	N/A
Oxygen	%	20.97	N/A	N/A
Moisture content	%	0.32	N/A	N/A
Molecular weight dry	g/gmol	28.84	N/A	N/A
Velocity at sampling plane	m/s	18.6	N/A	N/A
Volumetric flow rate (wet, actual)	m^3/s	11.84	N/A	N/A
Volumetric flow rate (dry, STP)	m^3/s	10.8	N/A	N/A

Table 4-3 shows the concentration and emission rate results from testing.

Table 4-3: Results for EPL Point 3

Pollutant	Isokinetic rate (%)	Concentration	Emission rate	Concentration Limit	Compliant with Limit
Total VOCs as n-Propane	N/A	< 0.033 mg/m^3	< 0.00035 g/s	20 mg/m^3	✓
Odour	N/A	128 OU	1,387 $OU.m^3/s$	N/A	N/A

Measured VOCs were below laboratory detection limits

Appendix A provides a copy of the VOC and particulate laboratory results. Appendix B provides a copy of the odour laboratory results.

4.2 Decorator Oven Stack Outlet

Figure 4-2 shows the Decorator Oven Stack outlet.

Figure 4-2: DC Stack

Table 4-4 shows the testing information for the sampling plane.

Table 4-4: Sampling plane information Deco Stack

Parameter	Unit	Information	Comments
Date	-	19/09/2023	
Number of sampling runs performed	-	2	1x VOC sample run 1x Odour sample run
Sampling duration Odour VOC	Minutes per run	 30 30	
Process conditions at time of sampling	-	Steady state	
Sample plane diameter	mm	435	
Sample plane area	m^2	0.15	
Sample port diameter and depth	mm	110, 95	
Number of sample ports	-	1	
Duct orientation and shape	-	Vertical, circular	
Number of traverse points sampled	-	1	
Sample port compliant with AS4323.1	-	No	The stack does not have the required number of access ports.

Table 4-5 shows the volumetric and continuous gaseous parameters measured during testing.

Table 4-5: Results for the Deco Stack

Parameter	Unit	Result	EPL Limit	Compliant with EPL
Temperature	°C	44	N/A	N/A
Carbon dioxide	%	0.0	N/A	N/A
Oxygen	%	21	N/A	N/A
Moisture content	%	1.7	N/A	N/A
Molecular weight dry	g/gmol	28.84	N/A	N/A
Velocity at sampling plane	m/s	8.20	N/A	N/A
Volumetric flow rate (wet, actual)	m^3/s	1.22	N/A	N/A
Volumetric flow rate (dry, STP)	m^3/s	1	N/A	N/A

Table 4-3 4.6 shows the concentration and emission rate results of testing.

Table 4-6: Results for the Deco Stack

Pollutant	Isokinetic rate (%)	Concentration	Emission rate	Concentration Limit	Compliant with Limit
Total VOCs as n-Propane	N/A	< 0.035 mg/m^3	< 0.000036 g/s	20 mg/m^3	✓
Odour	N/A	23 OU	24.36 $OU.m^3/s$	N/A	N/A

Measured VOCs were below laboratory detection limits

Appendix A provides a copy of the VOC and particulate laboratory results. Appendix B provides a copy of the odour laboratory results.

4.3 Regenerative Thermal Oxidiser (RTO) Stack

Point source samples were taken at the Regenerative Thermal Oxidiser Stack – EPL 4, shown in Figure 4-3.

Figure 4-3: Regenerative Thermal Oxidiser Stack

Table 4-7 shows the testing information for the sampling plane.

Table 4-7: Sampling plane information – RTO Stack

Parameter	Unit	Information	Comments
Date	-	19/09/2023	
Number of sampling runs performed	-	2	1x VOC sample run 1x Odour sample run
Sampling duration Odour VOC	Minutes per run	 48 30	
Process conditions at time of sampling	-	Steady state	
Sample plane diameter	mm	700	
Sample plane area	m^2	0.49	
Number of sample ports	-	2	
Duct orientation and shape	-	Horizontal, Square	
Sample port compliant with AS4323.1	-	No	Only one sample port available for sampling at the time of sampling.

Table 4-2 shows the volumetric and continuous gaseous parameters measured during testing on the 19th of September 2023.

Table 4-8: Results for the Regenerative Thermal Oxidiser (RTO) Stack

Parameter	Unit	Result	POEO (Clean Air) Regulation 2010 Limit	Complaint with POEO Clean Air Regulation Limits
Temperature	°C	208	-	-
Carbon dioxide	%	1.19	-	-
Carbon monoxide	mg/m³	3	-	-
Oxygen	%	18.9	-	-
Molecular weight dry	g/gmol	28.84	-	-
Velocity at sampling plane	m/s	10	-	-
Volumetric flow rate (actual)	m³/s	4.9	-	-
Volumetric flow rate (dry, STP)	Nm³/s	2.77	-	-
Nitrogen Oxide	mg/m³	34.23	350	yes
Total VOCs as n-Propane	mg/m³	0	20	yes
Total VOCs as n-Propane Emission Rate	g/s	0	-	-
Moisture	%	0.17	-	-
Odour	OU	152	-	-
Odour Emission Rate	OU.m³/s	422	-	-
AQIA RTO Modelled Emission Limits	**Unit**	**Result**	**AQIA Model Limits**	**Complaint with AQIA RTO Modelled Limits**
Benzene	mg/m³	<0.0166	0.0196	yes
Toluene	mg/m³	<0.014	0.2017	yes
Ethylbenzene	mg/m³	<0.012	1.6345	yes
Total Xylenes	mg/m³	<0.012	1.107	yes
Total Trimethylbenzene	mg/m³	<0.011	1.4873	yes
Acetone 2- Propanone	mg/m³	<0.022	1.6897	yes
Benzene	g/s	<0.00008	0.0000735	yes
Toluene	g/s	<0.00008	0.000756	yes
Ethylbenzene	g/s	<0.00008	0.0061	yes
Total Xylenes	g/s	<0.00008	0.00415	yes
Total Trimethylbenzene	g/s	<0.00008	0.00558	yes
Acetone 2- Propanone	g/s	<0.00008	0.00633	yes
Odour Emission Rate	OU.V/s	422	2,175	yes
* VOCs Below Laboratory Limit of Reporting				

Appendix A provides a copy of the VOC and particulate laboratory results. Appendix B provides a copy of the odour laboratory results.

5 Conclusion

Annual stack sampling was conducted on EPL 3 and the Deco Area Stack on the 19th of September 2023. The analytes measured were Odour and Total VOCs as n-Propane. VOCs as n-Propane were below the Protection of the Environment Operations (Clean Air) Regulation's emission limits and Jamestrong's Environmental Protection License.

Regenerative Thermal Oxidiser (RTO) testing was also undertaken on the 19th of September 2023. Measurements were taken for total VOCs as n-Propane, Nitrogen Oxides, and Odour, with all results below the Protection of the Environment Operations (Clean Air) Regulation's emission limits of; 20 mg/m^3, and 350 mg/m^3 consecutively.

The adsorbent tube sampling and analytical procedure completed in 2023 found the VOCs to be acceptable for the compounds as the recovery (R) rate meets the quality requirements of $0.70 \leq R \leq 1.30$. The R value has been reported in the 2022 test report as per Test Method 34 (reference method USEPA Method 18).

As stated on page 7 of the EPA's; *Approved Methods for the sampling and analysis of air pollutants in NSW (Jan 2022)*,

> For USEPA Method 18, recovery studies are necessary for demonstrating the sampling system and collection media are appropriate for the source. Recovery studies should be performed where the source comprises a complex mixture of VOCs at significant concentrations (relative to any applicable limits). All QA/QC procedures, including recovery studies, must be detailed in the test report, and be accompanied by supporting evidence. If the requisite recovery studies have not been performed, then the method will not be considered to be USEPA Method 18. Instead, the method will be considered a significant modification, requiring approval, unless it can be demonstrated, to the satisfaction of the EPA, that the method otherwise meets the definition of a minor modification as per section 4.3

The 2022 report provided the stated recovery studies in the main body result tables and supporting evidence. The plant VOC emissions have been found to be consistent, and therefore this year the extensive recovery calculations and reporting as completed in 2022 are not required.

The Regenerative Thermal Oxidiser (RTO) testing results undertaken on the 19th of September 2023 were compared with the Air Quality Impact Assessment (AQIA), completed Jamestrong Packaging Australia, on the 10th of May 2021.

The AQIA modelled emission limits compared with the measured emissions were all found to be below the required emission limits.

With the exception of the connection of the Deco Area Stack to the RTO, the RTO is complying with the Protection of the Environment Operations (Clean Air) Regulation's emission limits, and the AQIA modelled emission limits.

Jamestrong will continue to progress through the Deco Area Stack connection process issues, found as a result of undertaking works to connect the Deco Area Stack to the RTO.

Upon installation of the Deco Area stack to the RTO, further commissioning sampling will be undertaken as per the Determination for DA2021/1606.

6 Limitations

6.1 Scope of Services and Reliance of Data

This Compliance Emission Testing Report ('the report') has been prepared in accordance with the scope of work/services agreed, between MJM Environmental Pty Ltd (MJM) and the Client. In preparing the report, MJM has relied upon data and other information provided by the Client and other individuals and organisations. Except as otherwise stated in the report, MJM has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report ("conclusions/summary") are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. MJM will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented, or otherwise not fully disclosed to MJM.

6.2 Study for Benefit of Client

This report has been prepared for the exclusive benefit of the Client and no other party. MJM assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with in this report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in this report (including without limitation matters arising from any negligent act or omission of MJM or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in this report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own inquiries and obtain independent advice in relation to such matters.

6.3 Other Limitations

To the best of MJM's knowledge, the proposal presented, and the facts and matters described in this report reasonably represent the Client's intentions at the time of printing of the report. However, the passage of time, the manifestation of latent conditions or the impact of future events (including a change in applicable law) may have resulted in a variation of the Proposal and of its possible environmental or health impact. MJM will not be liable to update or revise the report to take into account any events or emergent circumstances or facts occurring or becoming apparent after the date of the report.

7 Appendix A: VOC laboratory results

CERTIFICATE OF ANALYSIS

Work Order	: **EN2309622**	Page	: 1 of 10
Client	: **MJM ENVIRONMENTAL PTY LTD**	Laboratory	: Environmental Division Newcastle
Contact	: Henry Riddell	Contact	:
Address	: OFFICE 1, 335 WHARF ROAD NEWCASTLE NSW, AUSTRALIA 2300	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
Telephone	: ----	Telephone	: +61 2 4014 2500
Project	: 164 2441	Date Samples Received	: 20-Sep-2023 15:25
Order number	: 164 2441	Date Analysis Commenced	: 22-Sep-2023
C-O-C number	: ----	Issue Date	: 28-Sep-2023 14:25
Sampler	: HR		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Daniel Junek	Senior Organic Chemist	Newcastle - Organics, Mayfield West, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the 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 insufficient 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.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : 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
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP091: The LOR values for EP091 have been raised due to increased charcoal sample size (400/200 mg) over the standard charcoal sample size (100/50mg) requiring greater extraction volume of solvent.

Analytical Results

Sub-Matrix: SORBENT TUBE (Matrix: AIR)			Sample ID	Wet	RTO	Deco Stack	----	----
			Sampling date / time	19-Sep-2023 00:00	19-Sep-2023 00:00	19-Sep-2023 00:00	----	----
Compound	CAS Number	LOR	Unit	EN2309622-001	EN2309622-002	EN2309622-003	--------	--------
				Result	Result	Result	----	----
EP091A: Aliphatic Hydrocarbons - Total								
1-heptene	592-76-7	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
Heptane	142-82-5	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
Decane	124-18-5	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
n-Hexane	110-54-3	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
Cyclohexane	110-82-7	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
Isooctane	540-84-1	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
n-Octane	111-65-9	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
n-Nonane	111-84-2	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
EP091B: Monocyclic Aromatic Hydrocarbons - Total								
Benzene	71-43-2	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
Toluene	108-88-3	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
Ethylbenzene	100-41-4	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
meta- & para-Xylene	108-38-3 106-42-3	1.0	µg/sample	<2.0	<2.0	<2.0	----	----
Styrene	100-42-5	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
ortho-Xylene	95-47-6	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
n-Butylbenzene	104-51-8	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
Isopropylbenzene	98-82-8	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
n-Propylbenzene	103-65-1	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
tert-Butylbenzene	98-06-6	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
sec-Butylbenzene	135-98-8	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
p-Isopropyltoluene	99-87-6	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
Total Xylenes	----	1.5	µg/sample	<3.0	<3.0	<3.0	----	----
EP091C: Oxygenated Compounds - Total								
2-Propanone (Acetone)	67-64-1	1.0	µg/sample	<2.0	<2.0	<2.0	----	----
2-Butanone (MEK)	78-93-3	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
2-Hexanone (MBK)	591-78-6	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
Cyclohexanone	108-94-1	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
EP091D: Halogenated Compounds - Total								
1.1-Dichloroethane	75-34-3	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
Chloroform	67-66-3	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
Trichloroethene	79-01-6	0.5	µg/sample	<1.0	<1.0	<1.0	----	----

Analytical Results

Sub-Matrix: SORBENT TUBE (Matrix: AIR)			Sample ID	Wet	RTO	Deco Stack	----	----
			Sampling date / time	19-Sep-2023 00:00	19-Sep-2023 00:00	19-Sep-2023 00:00	----	----
Compound	CAS Number	LOR	Unit	EN2309622-001	EN2309622-002	EN2309622-003	--------	--------
				Result	Result	Result	----	----
EP091D: Halogenated Compounds - Total - Continued								
Chlorobenzene	108-90-7	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
2-Chlorotoluene	95-49-8	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
4-Chlorotoluene	106-43-4	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
1.3-Dichlorobenzene	541-73-1	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
1.4-Dichlorobenzene	106-46-7	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
1.2-Dichlorobenzene	95-50-1	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
Hexachlorobutadiene	87-68-3	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
Bromochloromethane	74-97-5	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
2.2-Dichloropropane	594-20-7	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
1.2-Dichloroethane	107-06-2	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
1.1.1-Trichloroethane	71-55-6	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
1.1-Dichloropropene	563-58-6	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
Carbon Tetrachloride	56-23-5	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
Dibromomethane	74-95-3	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
1.2-Dichloropropane	78-87-5	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
Bromodichloromethane	75-27-4	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
trans-1.3-Dichloropropene	10061-02-6	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
1.1.2-Trichloroethane	79-00-5	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
1.3-Dichloropropane	142-28-9	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
Dibromochloromethane	124-48-1	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
Tetrachloroethene	127-18-4	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
Bromoform	75-25-2	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
1.2.3-Trichloropropane	96-18-4	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
Bromobenzene	108-86-1	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
1.1-Dichloroethene	75-35-4	0.5	µg/sample	<1.0	<1.0	<1.0	----	----

Analytical Results

Sub-Matrix: SORBENT TUBE (Matrix: AIR)			Sample ID	Wet	RTO	Deco Stack	----	----
			Sampling date / time	19-Sep-2023 00:00	19-Sep-2023 00:00	19-Sep-2023 00:00	----	----
Compound	CAS Number	LOR	Unit	EN2309622-001	EN2309622-002	EN2309622-003	--------	--------
				Result	Result	Result	----	----
EP091E: Polycyclic Aromatic Hydrocarbons - Total								
Naphthalene	91-20-3	0.5	µg/sample	<1.0	<1.0	<1.0	----	----
EP091E: Polycyclic Aromatic Hydrocarbons (Section 2)								
Naphthalene	91-20-3	0.5	µg	<1.0	<1.0	<1.0	----	----
EP091X: VOCs in Air - Extended List (non-NATA) - Total								
Vinyl chloride	75-01-4	2.0	µg/sample	<4.0	<4.0	<4.0	----	----
Bromomethane	74-83-9	2.0	µg/sample	<4.0	<4.0	<4.0	----	----
Trichlorofluoromethane	75-69-4	1.0	µg/sample	<2.0	<2.0	<2.0	----	----
EP091A: Aliphatic Hydrocarbons (Section 1)								
1-heptene	592-76-7	0.5	µg	<1.0	<1.0	<1.0	----	----
Heptane	142-82-5	0.5	µg	<1.0	<1.0	<1.0	----	----
Decane	124-18-5	0.5	µg	<1.0	<1.0	<1.0	----	----
n-Hexane	110-54-3	0.5	µg	<1.0	<1.0	<1.0	----	----
Cyclohexane	110-82-7	0.5	µg	<1.0	<1.0	<1.0	----	----
Isooctane	540-84-1	0.5	µg	<1.0	<1.0	<1.0	----	----
n-Octane	111-65-9	0.5	µg	<1.0	<1.0	<1.0	----	----
n-Nonane	111-84-2	0.5	µg	<1.0	<1.0	<1.0	----	----
EP091B: Monocyclic Aromatic Hydrocarbons (Section 1)								
Benzene	71-43-2	0.5	µg	<1.0	<1.0	<1.0	----	----
Toluene	108-88-3	0.5	µg	<1.0	<1.0	<1.0	----	----
Ethylbenzene	100-41-4	0.5	µg	<1.0	<1.0	<1.0	----	----
meta- & para-Xylene	108-38-3 106-42-3	1.0	µg	<2.0	<2.0	<2.0	----	----
Styrene	100-42-5	0.5	µg	<1.0	<1.0	<1.0	----	----
ortho-Xylene	95-47-6	0.5	µg	<1.0	<1.0	<1.0	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	µg	<1.0	<1.0	<1.0	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	µg	<1.0	<1.0	<1.0	----	----
n-Butylbenzene	104-51-8	0.5	µg	<1.0	<1.0	<1.0	----	----
Isopropylbenzene	98-82-8	0.5	µg	<1.0	<1.0	<1.0	----	----
n-Propylbenzene	103-65-1	0.5	µg	<1.0	<1.0	<1.0	----	----
tert-Butylbenzene	98-06-6	0.5	µg	<1.0	<1.0	<1.0	----	----
sec-Butylbenzene	135-98-8	0.5	µg	<1.0	<1.0	<1.0	----	----
p-Isopropyltoluene	99-87-6	0.5	µg	<1.0	<1.0	<1.0	----	----
EP091C: Oxygenated Compounds (Section 1)								
2-Propanone (Acetone)	67-64-1	1.0	µg	<2.0	<2.0	<2.0	----	----
2-Butanone (MEK)	78-93-3	0.5	µg	<1.0	<1.0	<1.0	----	----

Analytical Results

Sub-Matrix: SORBENT TUBE (Matrix: AIR)				Sample ID	Wet	RTO	Deco Stack	----	----
				Sampling date / time	19-Sep-2023 00:00	19-Sep-2023 00:00	19-Sep-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		EN2309622-001	EN2309622-002	EN2309622-003	--------	--------
					Result	Result	Result	----	----
EP091C: Oxygenated Compounds (Section 1) - Continued									
4-Methyl-2-pentanone (MIBK)	108-10-1	0.5	µg		<1.0	<1.0	<1.0	----	----
2-Hexanone (MBK)	591-78-6	0.5	µg		<1.0	<1.0	<1.0	----	----
EP091D: Halogenated Compounds (Section 1)									
1.1-Dichloroethane	75-34-3	0.5	µg		<1.0	<1.0	<1.0	----	----
Chloroform	67-66-3	0.5	µg		<1.0	<1.0	<1.0	----	----
Trichloroethene	79-01-6	0.5	µg		<1.0	<1.0	<1.0	----	----
Chlorobenzene	108-90-7	0.5	µg		<1.0	<1.0	<1.0	----	----
2-Chlorotoluene	95-49-8	0.5	µg		<1.0	<1.0	<1.0	----	----
4-Chlorotoluene	106-43-4	0.5	µg		<1.0	<1.0	<1.0	----	----
1.3-Dichlorobenzene	541-73-1	0.5	µg		<1.0	<1.0	<1.0	----	----
1.4-Dichlorobenzene	106-46-7	0.5	µg		<1.0	<1.0	<1.0	----	----
1.2-Dichlorobenzene	95-50-1	0.5	µg		<1.0	<1.0	<1.0	----	----
Hexachlorobutadiene	87-68-3	0.5	µg		<1.0	<1.0	<1.0	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	µg		<1.0	<1.0	<1.0	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	µg		<1.0	<1.0	<1.0	----	----
Bromochloromethane	74-97-5	0.5	µg		<1.0	<1.0	<1.0	----	----
2.2-Dichloropropane	594-20-7	0.5	µg		<1.0	<1.0	<1.0	----	----
1.2-Dichloroethane	107-06-2	0.5	µg		<1.0	<1.0	<1.0	----	----
1.1.1-Trichloroethane	71-55-6	0.5	µg		<1.0	<1.0	<1.0	----	----
1.1-Dichloropropene	563-58-6	0.5	µg		<1.0	<1.0	<1.0	----	----
Carbon Tetrachloride	56-23-5	0.5	µg		<1.0	<1.0	<1.0	----	----
Dibromomethane	74-95-3	0.5	µg		<1.0	<1.0	<1.0	----	----
1.2-Dichloropropane	78-87-5	0.5	µg		<1.0	<1.0	<1.0	----	----
Bromodichloromethane	75-27-4	0.5	µg		<1.0	<1.0	<1.0	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	µg		<1.0	<1.0	<1.0	----	----
trans-1.3-Dichloropropene	10061-02-6	0.5	µg		<1.0	<1.0	<1.0	----	----
1.1.2-Trichloroethane	79-00-5	0.5	µg		<1.0	<1.0	<1.0	----	----
1.3-Dichloropropane	142-28-9	0.5	µg		<1.0	<1.0	<1.0	----	----
Dibromochloromethane	124-48-1	0.5	µg		<1.0	<1.0	<1.0	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	µg		<1.0	<1.0	<1.0	----	----
Tetrachloroethene	127-18-4	0.5	µg		<1.0	<1.0	<1.0	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	µg		<1.0	<1.0	<1.0	----	----
Bromoform	75-25-2	0.5	µg		<1.0	<1.0	<1.0	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	µg		<1.0	<1.0	<1.0	----	----

Analytical Results

Sub-Matrix: SORBENT TUBE (Matrix: AIR)				Sample ID	Wet	RTO	Deco Stack	----	----
				Sampling date / time	19-Sep-2023 00:00	19-Sep-2023 00:00	19-Sep-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		EN2309622-001	EN2309622-002	EN2309622-003	--------	--------
					Result	Result	Result	----	----
EP091D: Halogenated Compounds (Section 1) - Continued									
1.2.3-Trichloropropane	96-18-4	0.5	µg		<1.0	<1.0	<1.0	----	----
Bromobenzene	108-86-1	0.5	µg		<1.0	<1.0	<1.0	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	µg		<1.0	<1.0	<1.0	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	µg		<1.0	<1.0	<1.0	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	µg		<1.0	<1.0	<1.0	----	----
1.1-Dichloroethene	75-35-4	0.5	µg		<1.0	<1.0	<1.0	----	----
EP091E: Polycyclic Aromatic Hydrocarbons (Section 1)									
Naphthalene	91-20-3	0.5	µg		<1.0	<1.0	<1.0	----	----
EP091X: VOCs in Air - Extended List (non-NATA) (Section 1)									
Vinyl chloride	75-01-4	2.0	µg		<4.0	<4.0	<4.0	----	----
Bromomethane	74-83-9	2.0	µg		<4.0	<4.0	<4.0	----	----
Trichlorofluoromethane	75-69-4	1.0	µg		<2.0	<2.0	<2.0	----	----
EP091A: Aliphatic Hydrocarbons (Section 2)									
1-heptene	592-76-7	0.5	µg		<1.0	<1.0	<1.0	----	----
Heptane	142-82-5	0.5	µg		<1.0	<1.0	<1.0	----	----
Decane	124-18-5	0.5	µg		<1.0	<1.0	<1.0	----	----
n-Hexane	110-54-3	0.5	µg		<1.0	<1.0	<1.0	----	----
Cyclohexane	110-82-7	0.5	µg		<1.0	<1.0	<1.0	----	----
Isooctane	540-84-1	0.5	µg		<1.0	<1.0	<1.0	----	----
n-Octane	111-65-9	0.5	µg		<1.0	<1.0	<1.0	----	----
n-Nonane	111-84-2	0.5	µg		<1.0	<1.0	<1.0	----	----
EP091B: Monocyclic Aromatic Hydrocarbons (Section 2)									
Benzene	71-43-2	0.5	µg		<1.0	<1.0	<1.0	----	----
Toluene	108-88-3	0.5	µg		<1.0	<1.0	<1.0	----	----
Ethylbenzene	100-41-4	0.5	µg		<1.0	<1.0	<1.0	----	----
meta- & para-Xylene	108-38-3 106-42-3	1.0	µg		<2.0	<2.0	<2.0	----	----
Styrene	100-42-5	0.5	µg		<1.0	<1.0	<1.0	----	----
ortho-Xylene	95-47-6	0.5	µg		<1.0	<1.0	<1.0	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	µg		<1.0	<1.0	<1.0	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	µg		<1.0	<1.0	<1.0	----	----
n-Butylbenzene	104-51-8	0.5	µg		<1.0	<1.0	<1.0	----	----
Isopropylbenzene	98-82-8	0.5	µg		<1.0	<1.0	<1.0	----	----
n-Propylbenzene	103-65-1	0.5	µg		<1.0	<1.0	<1.0	----	----
tert-Butylbenzene	98-06-6	0.5	µg		<1.0	<1.0	<1.0	----	----

Analytical Results

Sub-Matrix: SORBENT TUBE (Matrix: AIR)				Sample ID	Wet	RTO	Deco Stack	----	----
				Sampling date / time	19-Sep-2023 00:00	19-Sep-2023 00:00	19-Sep-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		EN2309622-001	EN2309622-002	EN2309622-003	--------	--------
					Result	Result	Result	----	----
EP091B: Monocyclic Aromatic Hydrocarbons (Section 2) - Continued									
sec-Butylbenzene	135-98-8	0.5	µg		<1.0	<1.0	<1.0	----	----
p-Isopropyltoluene	99-87-6	0.5	µg		<1.0	<1.0	<1.0	----	----
EP091C: Oxygenated Compounds (Section 2)									
2-Propanone (Acetone)	67-64-1	1.0	µg		<2.0	<2.0	<2.0	----	----
2-Butanone (MEK)	78-93-3	0.5	µg		<1.0	<1.0	<1.0	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	0.5	µg		<1.0	<1.0	<1.0	----	----
2-Hexanone (MBK)	591-78-6	0.5	µg		<1.0	<1.0	<1.0	----	----
EP091D: Halogenated Compounds (Section 2)									
1.1-Dichloroethane	75-34-3	0.5	µg		<1.0	<1.0	<1.0	----	----
Chloroform	67-66-3	0.5	µg		<1.0	<1.0	<1.0	----	----
Trichloroethene	79-01-6	0.5	µg		<1.0	<1.0	<1.0	----	----
Chlorobenzene	108-90-7	0.5	µg		<1.0	<1.0	<1.0	----	----
2-Chlorotoluene	95-49-8	0.5	µg		<1.0	<1.0	<1.0	----	----
4-Chlorotoluene	106-43-4	0.5	µg		<1.0	<1.0	<1.0	----	----
1.3-Dichlorobenzene	541-73-1	0.5	µg		<1.0	<1.0	<1.0	----	----
1.4-Dichlorobenzene	106-46-7	0.5	µg		<1.0	<1.0	<1.0	----	----
1.2-Dichlorobenzene	95-50-1	0.5	µg		<1.0	<1.0	<1.0	----	----
Hexachlorobutadiene	87-68-3	0.5	µg		<1.0	<1.0	<1.0	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	µg		<1.0	<1.0	<1.0	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	µg		<1.0	<1.0	<1.0	----	----
Bromochloromethane	74-97-5	0.5	µg		<1.0	<1.0	<1.0	----	----
2.2-Dichloropropane	594-20-7	0.5	µg		<1.0	<1.0	<1.0	----	----
1.2-Dichloroethane	107-06-2	0.5	µg		<1.0	<1.0	<1.0	----	----
1.1.1-Trichloroethane	71-55-6	0.5	µg		<1.0	<1.0	<1.0	----	----
1.1-Dichloropropene	563-58-6	0.5	µg		<1.0	<1.0	<1.0	----	----
Carbon Tetrachloride	56-23-5	0.5	µg		<1.0	<1.0	<1.0	----	----
Dibromomethane	74-95-3	0.5	µg		<1.0	<1.0	<1.0	----	----
1.2-Dichloropropane	78-87-5	0.5	µg		<1.0	<1.0	<1.0	----	----
Bromodichloromethane	75-27-4	0.5	µg		<1.0	<1.0	<1.0	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	µg		<1.0	<1.0	<1.0	----	----
trans-1.3-Dichloropropene	10061-02-6	0.5	µg		<1.0	<1.0	<1.0	----	----
1.1.2-Trichloroethane	79-00-5	0.5	µg		<1.0	<1.0	<1.0	----	----
1.3-Dichloropropane	142-28-9	0.5	µg		<1.0	<1.0	<1.0	----	----
Dibromochloromethane	124-48-1	0.5	µg		<1.0	<1.0	<1.0	----	----

Analytical Results

Sub-Matrix: SORBENT TUBE (Matrix: AIR)				Sample ID	Wet	RTO	Deco Stack	----	----
				Sampling date / time	19-Sep-2023 00:00	19-Sep-2023 00:00	19-Sep-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		EN2309622-001	EN2309622-002	EN2309622-003	--------	--------
					Result	Result	Result	----	----
EP091D: Halogenated Compounds (Section 2) - Continued									
1.2-Dibromoethane (EDB)	106-93-4	0.5	µg		<1.0	<1.0	<1.0	----	----
Tetrachloroethene	127-18-4	0.5	µg		<1.0	<1.0	<1.0	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	µg		<1.0	<1.0	<1.0	----	----
Bromoform	75-25-2	0.5	µg		<1.0	<1.0	<1.0	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	µg		<1.0	<1.0	<1.0	----	----
1.2.3-Trichloropropane	96-18-4	0.5	µg		<1.0	<1.0	<1.0	----	----
Bromobenzene	108-86-1	0.5	µg		<1.0	<1.0	<1.0	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	µg		<1.0	<1.0	<1.0	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	µg		<1.0	<1.0	<1.0	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	µg		<1.0	<1.0	<1.0	----	----
1.1-Dichloroethene	75-35-4	0.5	µg		<1.0	<1.0	<1.0	----	----
EP091X: VOCs in Air - Extended List (non-NATA) (Section 2)									
Vinyl chloride	75-01-4	2.0	µg		<4.0	<4.0	<4.0	----	----
Bromomethane	74-83-9	2.0	µg		<4.0	<4.0	<4.0	----	----
Trichlorofluoromethane	75-69-4	1.0	µg		<2.0	<2.0	<2.0	----	----
EP091: Chlorinated Organic Surrogates (Section 1)									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		**118**	**120**	**122**	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		**68.1**	**64.1**	**65.2**	----	----
EP091: Chlorinated Organic Surrogates (Section 2)									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		**114**	**110**	**119**	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		**67.7**	**61.4**	**74.4**	----	----
EP091: MAH Surrogates (Section 1)									
Toluene-D8	2037-26-5	0.5	%		**85.8**	**85.2**	**83.6**	----	----
EP091: MAH Surrogates (Section 2)									
Toluene-D8	2037-26-5	0.5	%		**81.3**	**78.4**	**86.2**	----	----

Surrogate Control Limits

Sub-Matrix: SORBENT TUBE		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP091: Chlorinated Organic Surrogates (Section 1)			
1.2-Dichloroethane-D4	17060-07-0	70	130
4-Bromofluorobenzene	460-00-4	60	130
EP091: Chlorinated Organic Surrogates (Section 2)			
1.2-Dichloroethane-D4	17060-07-0	60	140
4-Bromofluorobenzene	460-00-4	60	140
EP091: MAH Surrogates (Section 1)			
Toluene-D8	2037-26-5	70	130
EP091: MAH Surrogates (Section 2)			
Toluene-D8	2037-26-5	60	140

8 Appendix B: Odour laboratory results

☒ **Sydney Laboratory**
The Odour Unit Pty Ltd
Level 3, 12/56 Church Avenue
MASCOT NSW 2020
P: +61 2 9209 4420
E: info@odourunit.com.au
ABN: 53 091 165 061

☐ **Brisbane Laboratory**
The Odour Unit (QLD) Pty Ltd
2/57 Neumann Road
CAPALABA QLD 4165
P: +61 7 3245 1700
E: qldinfo@odourunit.com.au
ABN: 87 102 255 765

Odour Concentration Measurement Report

Sampling and Laboratory Information

Organisation	MJM Environmental	Telephone	02 4926 4222
Contact	M. Majerowski	Email	monica@mjmenvironmental.com.au
Sampling Site	Not disclosed	Sampling Personnel	MJM Environmental
Sampling Method	Not disclosed	Laboratory Location	Mascot, NSW

Order and Project Information

Order requested by	M. Majerowski	Order accepted by	M. Assal
Date of order	Refer to correspondence	TOU Project #	N1866
Order number	Refer to correspondence	Project Manager	A. Schulz
Signed by	M. Majerowski	Panel Operator	A. Schulz

Investigated Item	Odour concentration in odour units 'ou', determined by sensory odour concentration measurements, of an odour sample supplied in a sampling bag.
Identification	The odour sample bags were labelled individually. Each label recorded the testing laboratory, sample number, sampling location (or Identification), sampling date and time, dilution ratio (if dilution was used) and whether further chemical analysis was required.
Method	The odour concentration measurements were performed using dynamic olfactometry according to the Australian/New Zealand Standard: Stationary source emissions – *Part 3*: '*Determination of odour concentration by dynamic olfactometry* (AS/NZS 4323.3). The odour perception characteristics of the panel within the presentation series for the samples were analogous to that for butanol calibration. Any deviation from the Australian standard is recorded in the 'Comments' section of this report.
Measuring Range	The measuring range of the olfactometer is $2^2 \leq \chi \leq 2^{18}$ ou. If the measuring range was insufficient the odour samples will have been pre-diluted. The machine is not calibrated beyond dilution setting 2^{17}. This is specifically mentioned with the results.
Environment	The measurements were performed in an air- and odour-conditioned room. The room temperature is maintained at 22 °C ±3 °C.
Measuring Dates	The date of each measurement is specified with the results.
Instrument Used	The olfactometer used during this testing session was: TOU-OLF-004
Laboratory Precision	The precision of this laboratory (expressed as repeatability) for sensory quality must be $r \leq 0.477$ in accordance with the AS/NZS 4323.3. $r = 0.461$ Compliance – Yes
Laboratory Accuracy	The accuracy of this laboratory for sensory quality must be $A \leq 0.217$ in accordance with the AS/NZS 4323.3. $A = 0.216$ Compliance – Yes
Lower Detection Limit (LDL)	The LDL for the olfactometer has been determined to be 16 ou, which is 4 times the lowest dilution setting.
Traceability	The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. The assessors are individually selected to comply with fixed criteria and are monitored in time to keep within the limits of the standard. The results from the assessors are traceable to primary standards of n-butanol in nitrogen. Note Disclaimers on last page of this document.

Accredited for compliance with ISO/IEC 17025 - Testing.
This report shall not be reproduced, except in full.

Date: Thursday, 12 October 2023 Panel Roster Number: SYD20230920_067

A. Schulz
Authorised Signatory

THE ODOUR UNIT

Accreditation Number: 14974

Odour Sample Measurement Results
Panel Roster Number: SYD20230920_067

Sample ID / Location	Laboratory ID	Sampling Date & Time	Analysis Date & Time	Panel Size	Valid ITEs	Final Odour Concentration (ou)
Sample 1 - RTO	SC23497	19.09.2023 1237-1325 hrs	20.09.2023 1046 hrs	4	8	152
Sample 2 - Wet Separator	SC23498	19.09.2023 1335-1405 hrs	20.09.2023 1118 hrs	4	8	128
Sample 3 - Deco	SC23499	19.09.2023 1420-1450 hrs	20.09.2023 1137 hrs	4	4	23*

Samples Received in Laboratory – From: MJM (I. Majerowski) Date: 19.09.2023 Time: 1000 hrs

Note: The following are not covered by the NATA Accreditation issued to The Odour Unit:

1. The collection of samples by a method that is not prescribed by AS/NZS 4323.3.
2. Final results that have been modified by the dilution factors where parties other than The Odour Unit have performed the dilution of samples.

THE ODOUR UNIT

Accreditation Number: 14974

Odour Panel Calibration Results

Reference Odorant	Reference Odorant Panel Roster Number	Concentration of Reference gas (ppb)	Panel Target Range for n-butanol (ppb)	Measured Concentration (ou)	Measured Panel Threshold (ppb)	Does this panel calibration measurement comply with AS/NZS 4323.3 (Yes / No)
n-butanol	SYD20230920_067	44,800	$20 \leq \chi \leq 80$	724	62	Yes

Comments: Odour characters (non-NATA accredited) as determined by odour laboratory panel:

Laboratory ID	Odour Character
SC23497	gassy, exhaust
SC23498	sweet, spray paint
SC23499	musty

Departures: Clause 9.5.3 (d) – Cross-sectional distribution of airflow and concentration from port openings are not checked due to the impracticality of the requirement.
*SC23499: Insufficient sample volume for a third round; only the second valid round is reported.

Disclaimers:
1. Parties, other than The Odour Unit, responsible for collecting odour samples have advised that they have voluntarily furnished these odour samples, appropriately collected and labelled, to The Odour Unit for the purpose of odour testing.
2. The collection of odour samples by parties other than The Odour Unit relinquishes The Odour Unit from all responsibility for the sample collection and any effects or actions that the results from the test(s) may have.
3. Any comments included in, or attachments to, this Report are not covered by the NATA Accreditation issued to The Odour Unit.
4. This report shall not be reproduced, except in full, without written approval of The Odour Unit.

Report Status

Status	Version	Prepared by	Date	Checked by	Date	Change	Reason
Draft	0.1	A. Schulz	09.10.2023	--	--	--	--
Final	1.0	A. Schulz	09.10.2023	M. Assal	09.10.2023	--	--
Revised	1.1	--	--	--	--	--	--

END OF DOCUMENT

9 Appendix C – Operational Data Provided by Client

Testing Period to include Millenium & Stack 4 - (Line 1 & 2 deco Oven Discharge) 9:45-13:00 3.25

Table 2-2: Production Line Operating Rates & Can Volumes During Testing Period 9:45am - 1:00pm Tues 19/09/2023

Production Line	Can Size / Spec Manufactured During Sample Period	Sample Period Start / Stop Time	Normal Production Rate (cans/min)	Production Rate at time of sampling (cans/min)	Cans Produced During Sampling Period	Line OEE During Test Period	Aluminium Used (kg)	Internal Lining Type	Internal Lining Used (kg)	Basecoat External Coating Type	Basecoat External Coating Used (kg)	Ink Type	Ink Used (kg)	Overvarnish External Coating Type	Overvarnish External Coatings Used (kg)	Considered Normal Operations		Comments
Line 1 aluminium aerosol cans	45x190 Taft Mouse		125	125	19848	81%	696.446472	PPG PAI	15.739464	PPG Clear	8.4354	Akso Nobel Diaflex	1.9848	PPG Gloss	9.924	Yes		Better than normal output, few stops, No Changeovers
Line 2 aluminium aerosol cans	53x171 Gillette Shave Foam		135	125	13440	51%	500.72064	PPG Epoxy	13.0368	PPG White	13.1712	Akso Nobel Diaflex	1.344	PPG Gloss	5.376	yes		Number minor stoppages during sampling, No Changeovers - normal prod
Line 3 aluminium aerosol cans	50x190 Dove Apple		135	135	10865	41%	392.68283	PPG Epoxy	10.865	PPG White	10.6477	Akso Nobel Diaflex	1.0865	PPG Semi Matt	4.346	yes		Number minor stoppages during sampling, No Changeovers - normal prod
Tradewaste Treatment Plant Discharge			135 kl/day		11.2 kL											yes		Total waste water discharge across sampling period

Taree Line OEE	Past 3 Months Monthly Ave
Line 1	57.3%
Line 2	45.2%
Line 3	53.1%

Noise
All line fans (noise producing) equip & external services in operation Mon 17th through Wed 19th constantly

Line 1 Products

Can Label

73.jpg

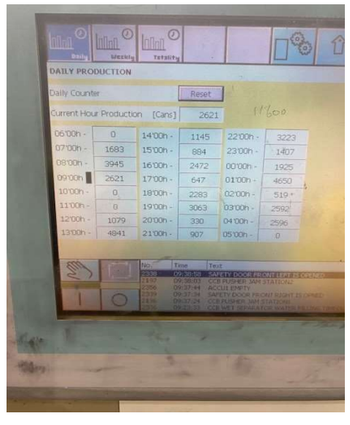
Internal Lining

Basecoat

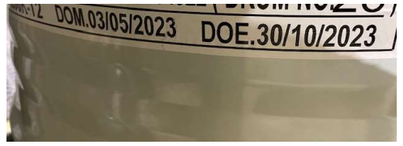
Overvarnish

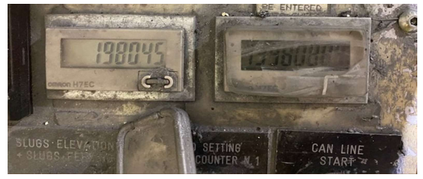
Start Counters 10:00am (9:40)

Line 2 Products

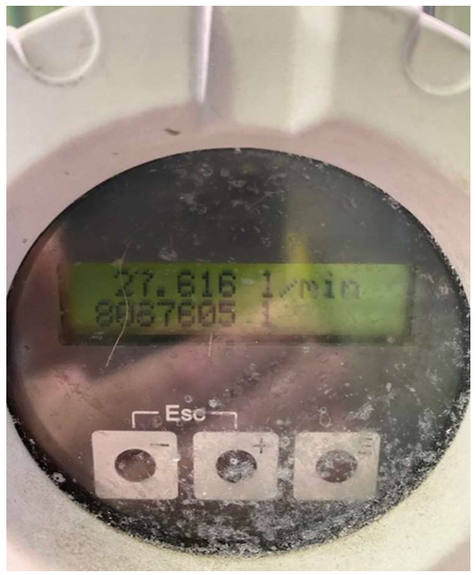


Line 3 Products





WWTP



Prophit Systems

Line Performance Report - by Size

18/09/2023 To 19/09/2023
Agg

Total / Deptm't / Line	Utilth (%)	PE (%)	Line Effncy	Total Good Production (Qty/Kg)	Waste Unit (Qty/Kg)	RFT + HFI	Total Waste + HFI Waste	Spoilt %	CPD	Total HFI	Spoilt HFI	Runtime @RS	Time avail 7x24	Sched Hrs	Unpln DT	Unall. hrs	Sch DT	Pln DT PM	Pln DT Trial	No. Chg / Ovr	Avg Chg / Ovr
Cans	**98%**	**39.6%**	**46.4%**	**461,538**	**63,237**	**475,218**	**71,337**	**13.2%**	**236,359**	**13,680**	**8,100**	**56.0**	**144**	**141.4**	**54.3**	**2.6**	**2.6**	**2.1**	**0.0**	**4**	**3.0**
L1	97%	31.2%	46.3%	113,372	18,925	116,252	18,925	14.0%	58,326	2,880	0	14.5	48	46.7	13.5	1.0	1.4	0.9	0.0	4	3.8
45x190	-	35.3%	72.3%	38,528	5,682	38,528	5,682	12.9%	66,048	0	0	4.9	-	14.0	0.7	0.5	-	0.0	0.0	2	3.5
45x190N	-	29.7%	29.7%	39,744	6,456	42,624	6,456	13.2%	55,618	2,880	0	5.1	-	17.2	10.6	0.7	-	0.4	0.0	0	0.0
50x185	-	29.0%	60.5%	35,100	6,787	35,100	6,787	16.2%	54,348	0	0	4.5	-	15.5	2.2	-0.2	-	0.5	0.0	2	4.0
L2	99%	27.8%	30.2%	111,150	32,859	121,950	40,959	25.5%	57,323	10,800	8,100	13.2	48	47.7	25.2	1.5	0.3	0.3	0.0	1	3.8
53x171	-	27.8%	30.2%	111,150	32,859	121,950	40,959	25.5%	57,323	10,800	8,100	13.2	-	47.7	25.2	1.5	-	0.3	0.0	1	3.8
L3	98%	59.9%	62.3%	237,016	11,453	237,016	11,453	4.6%	120,772	0	0	28.2	48	47.1	15.6	0.2	0.9	0.9	0.0	2	0.9
50x190	-	59.9%	62.3%	237,016	11,453	237,016	11,453	4.6%	120,772	0	0	28.2	-	47.1	15.6	0.2	-	0.9	0.0	2	0.9