Ektimo

Experts in air quality, odour and emission monitoring.

2024-25 Financial Year

Emission Testing Report

Report: R018524

Vertrex Pty Ltd, Oaklands

ilac-MRA NATA

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration, and inspection reports.

Document Information

Client Name:	Vertrex Pty Ltd
Report Number:	R018524
Date of Issue:	23 July 2025
Attention:	Kelly Clarkson
Address:	Answerth Drive Oaklands NSW 2646
Testing Laboratory:	Ektimo Pty Ltd, ABN 86 600 381 413

Report Authorisation

Glenn Easterby
Field Operations Manager

NATA Accredited Laboratory
No. 14601

Please note that only numerical results pertaining to measurements conducted directly by Ektimo are covered by Ektimo terms of NATA accreditation as described in the Test Methods table. This does not include calculations that use data supplied by third-parties, comments, conclusions, or recommendations based upon the results. Refer to Test Methods section for full details of testing covered by NATA accreditation.

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1 Executive Summary

1.1 Background

Ektimo is engaged by Vertrex Pty Ltd on an annual basis to perform emission testing at their Oaklands facility. Testing was carried out in accordance with the publication: Approved Methods for the Sampling and Analysis of Air Pollutants in NSW for regulatory purposes.

1.2 Project Objective & Overview

The objective of the project was to conduct a monitoring programme to quantify emissions from five discharge points to determine compliance with Vertrex Pty Ltd's Environment Protection Licence.

Monitoring was performed as follows:

Location	Test Date	Test Parameters*
DP2 – Propellant Furnace	3 June 2025	Total solid particles Hydrogen chloride Metals – Zn Nitrogen oxides (as NO_2) Carbon dioxide, oxygen
MP3 – Afterburner of Propellant Furnace	3 June 2025	Flow rate, velocity, temperature, moisture
DP4 – Wet Scrubber	4 June 2025	Total solid particles Hydrogen chloride Metals – Zn Dioxins & Furans (PCDD/DF)
DP5 – Nitrocellulose Furnace	5 June 2025	Total solid particles Hydrogen chloride Metals – Type 1 & 2 Substances (Including As, Be, Cd, Cr, Co, Hg, Mn, Ni, Pb, Sb, Se, Sn, V), Zn Nitrogen oxides (as NO_2) Carbon dioxide, oxygen
DP6 – EBF Baghouse	3 June 2025	Total solid particles Hydrogen chloride Metals – Zn

* Flow rate, velocity, temperature, and moisture were also determined.

All volume-based concentrations are reported on a dry basis at STP.

Plant operating conditions have been noted in the report on page 16.

1.3 Licence Comparison

The following table provides a summary of the emission monitoring programme. Results have been compared with Vertrex Pty Ltd's Environment Protection Licence 11947 (last amended on 2 June 2025), as set by the NSW EPA. All analytes demonstrated compliance with the licence limits.

EPA	Location Description	Parameter	Units	Licence Limit	Detected Values
Point 2	Propellant Furnace	Hydrogen chloride	mg/m^3 at STP dry	100	**0.062**
		Nitrogen oxides (as NO_2)	mg/m^3 at STP dry	350	**85**
		Solid particles	mg/m^3 at STP dry	50	**<3**
		Zinc	mg/m^3 at STP dry	0.5	**0.054**
Point 4	Wet Scrubber	Dioxins & Furans (NSW EPA 2022-TEQ upper bound)	ng/m^3 at STP dry	0.1	**0.0090**
		Hydrogen chloride	mg/m^3 at STP dry	100	**0.92**
		Solid particles	mg/m^3 at STP dry	50	**1.8**
		Zinc	mg/m^3 at STP dry	10	**0.033**
Point 5	Nitrocellulose Furnace	Hydrogen chloride	mg/m^3 at STP dry	100	**0.78**
		Nitrogen oxides (as NO_2)	mg/m^3 at STP dry	350	**31**
		Solid particles	mg/m^3 at STP dry	50	**6.4**
		Type 1 & 2 substances in aggregate	mg/m^3 at STP dry	1	**≤0.07**
		Zinc	mg/m^3 at STP dry	0.5	**0.017**
Point 6	EBF Baghouse	Hydrogen chloride	mg/m^3 at STP dry	100	**<0.02**
		Solid particles	mg/m^3 at STP dry	50	**<2**
		Zinc	mg/m^3 at STP dry	10	**0.0089**

Please note that the measurement uncertainty associated with the test results was not considered when determining whether the results were compliant or non-compliant.

2 Results

2.1 DP2 – Propellant Furnace

Date	3/06/2025	**Client**	Vertrex Pty Ltd
Report	R018524	**Stack ID**	DP2 - Propellant Furnace
Licence No.	11947	**Location**	Oaklands
Ektimo Staff	Nick Heatley, Tony Bakas	**State**	NSW
Process Conditions	Please refer to client records		*250527*

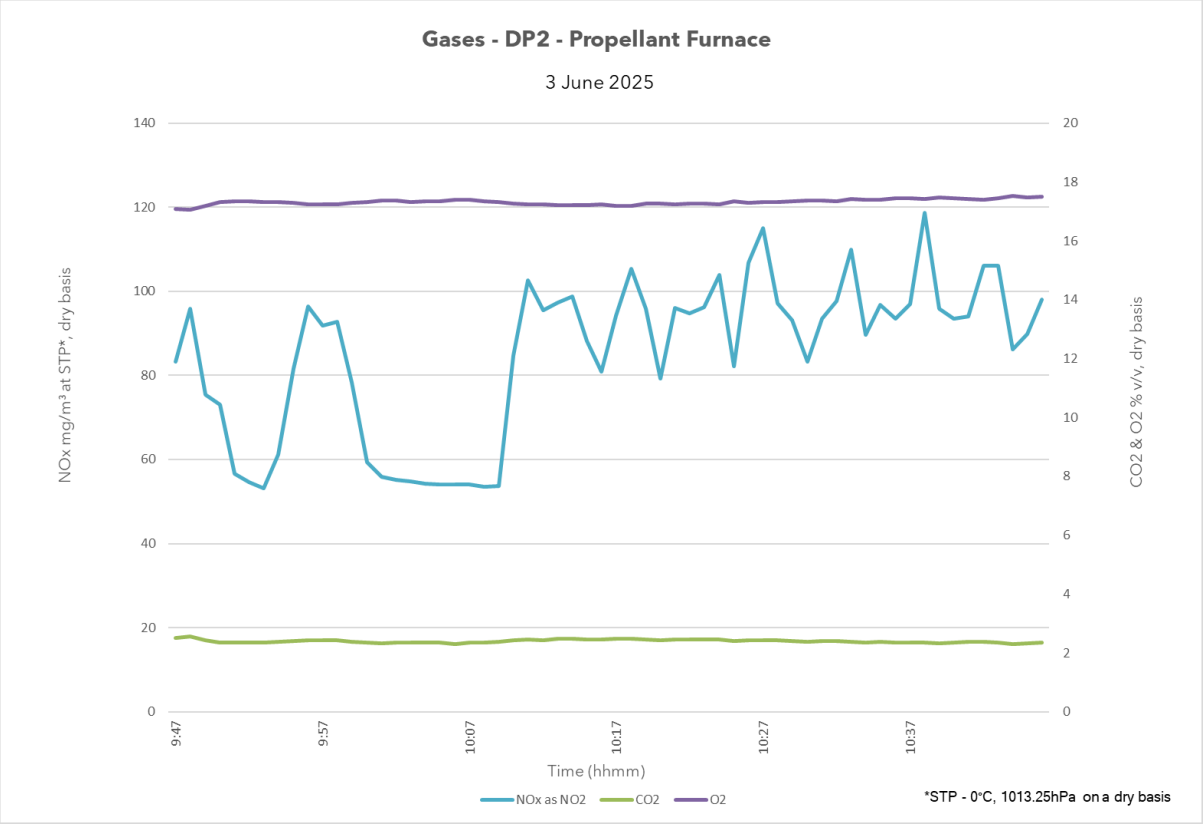
Stack Parameters		
Moisture content, %v/v	3.8	
Gas molecular weight, g/g mole	28.8 (wet)	29.2 (dry)
Gas density at STP, kg/m³	1.28 (wet)	1.30 (dry)
Gas density at discharge conditions, kg/m³	0.43	
Gas Flow Parameters		
Flow measurement time(s) (hhmm)	0850 & 1052	
Temperature, °C	520	
Temperature, K	793	
Ambient pressure, kPa	100	
Stack pressure, kPa	100	
Velocity at sampling plane, m/s	19	
Volumetric flow rate, actual, m³/s	5.2	
Volumetric flow rate (wet STP), m³/s	1.8	
Volumetric flow rate (dry STP), m³/s	1.7	
Mass flow rate (wet basis), kg/h	8200	

Isokinetic Results	Results	
Sampling time	0945-1048	
	Concentration mg/m³	Mass Rate g/min
Zinc	0.054	0.0056
Isokinetic Sampling Parameters		
Sampling time, min	60	
Isokinetic rate, %	100	

Isokinetic Results	Results	
Sampling time	0945-1048	
	Concentration mg/m³	Mass Rate g/min
Solid Particles	<3	<0.3
Hydrogen chloride	0.062	0.0063
Isokinetic Sampling Parameters		
Sampling time, min	60	
Isokinetic rate, %	100	
Gravimetric analysis date (total particulate)	11-06-2025	

Date	3/06/2025	**Client**	Vertrex Pty Ltd
Report	R018524	**Stack ID**	DP2 - Propellant Furnace
Licence No.	11947	**Location**	Oaklands
Ektimo Staff	Nick Heatley, Tony Bakas	**State**	NSW
Process Conditions	Please refer to client records		250527

Gas Analyser Results	Average
Sampling time	0947 - 1046
	Concentration mg/m³ / Mass Rate g/min
Combustion Gases	
Nitrogen oxides (as NO_2)	85 / 8.7
	Concentration % v/v
Carbon dioxide	2.4
Oxygen	17.3



2.2 MP3 – Afterburner of Propellant Furnace

Date	3/06/2025	**Client**	Vertrex Pty Ltd
Report	R018524	**Stack ID**	MP3 - Afterburner of Propellant Furnace
Licence No.	11947	**Location**	Oaklands
Ektimo Staff	Nick Heatley, Tony Bakas	**State**	NSW
Process Conditions	Please refer to client records		*250527*

Stack Parameters		
Moisture content, %v/v	3.8	
Gas molecular weight, g/g mole	28.8 (wet)	29.2 (dry)
Gas density at STP, kg/m³	1.28 (wet)	1.30 (dry)
Gas density at discharge conditions, kg/m³	0.43	
Gas Flow Parameters		
Flow measurement time(s) (hhmm)	0850 & 1052	
Temperature, °C	520	
Temperature, K	793	
Ambient pressure, kPa	100	
Stack pressure, kPa	100	
Velocity at sampling plane, m/s	19	
Volumetric flow rate, actual, m³/s	5.2	
Volumetric flow rate (wet STP), m³/s	1.8	
Volumetric flow rate (dry STP), m³/s	1.7	
Mass flow rate (wet basis), kg/h	8200	

Note: The temperature of the afterburner chamber was checked and recorded at 990 °C.

2.3 DP4 – Wet Scrubber

Date	4/06/2024	**Client**	Vertrex Pty Ltd
Report	R018524	**Stack ID**	DP4 - Wet Scrubber
Licence No.	11947	**Location**	Oaklands
Ektimo Staff	Nick Heatley, Tony Bakas	**State**	NSW
Process Conditions	Please refer to client records.		250527

Stack Parameters		
Moisture content, %v/v	1.1	
Gas molecular weight, g/g mole	28.8 (wet)	29.0 (dry)
Gas density at STP, kg/m³	1.29 (wet)	1.29 (dry)
Gas density at discharge conditions, kg/m³	1.19	
Gas Flow Parameters		
Flow measurement time(s) (hhmm)	0810, 1210, 1506	
Temperature, °C	19	
Temperature, K	292	
Ambient pressure, kPa	101	
Stack pressure, kPa	100	
Velocity at sampling plane, m/s	19	
Volumetric flow rate, actual, m³/s	2.8	
Volumetric flow rate (wet STP), m³/s	2.6	
Volumetric flow rate (dry STP), m³/s	2.5	
Mass flow rate (wet basis), kg/h	12000	

Isokinetic Results	Results	
Sampling time	1100-1202	
	Concentration mg/m³	Mass Rate g/min
Zinc	0.033	0.0051
Isokinetic Sampling Parameters		
Sampling time, min	60	
Isokinetic rate, %	100	

Isokinetic Results	Results	
Sampling time	1402-1504	
	Concentration mg/m³	Mass Rate g/min
Solid Particles	1.8	0.27
Hydrogen chloride	0.92	0.14
Isokinetic Sampling Parameters		
Sampling time, min	60	
Isokinetic rate, %	102	
Gravimetric analysis date (total particulate)	12-06-2025	

Date	4/06/2025	**Client**	Vertrex Pty Ltd
Report	R018524	**Stack ID**	DP4 - Wet Scrubber
Licence No.	11947	**Location**	Oaklands
Ektimo Staff	Nick Heatley, Tony Bakas	**State**	NSW
Process Conditions	Please refer to client records.		250527

Stack Parameters		
Moisture content, %v/v	1.1	
Gas molecular weight, g/g mole	28.8 (wet)	29.0 (dry)
Gas density at STP, kg/m³	1.29 (wet)	1.29 (dry)
Gas density at discharge conditions, kg/m³	1.20	
Gas Flow Parameters		
Flow measurement time(s) (hhmm)	0810 & 1506	
Temperature, °C	17	
Temperature, K	290	
Ambient pressure, kPa	100	
Stack pressure, kPa	100	
Velocity at sampling plane, m/s	19	
Volumetric flow rate, actual, m³/s	2.8	
Volumetric flow rate (wet STP), m³/s	2.6	
Volumetric flow rate (dry STP), m³/s	2.6	
Mass flow rate (wet basis), kg/h	12000	

Date	4/06/2025	**Client**	Vertrex Pty Ltd
Report	R018524	**Stack ID**	DP4 - Wet Scrubber
Licence No.	11947	**Location**	Oaklands
Ektimo Staff	Nick Heatley, Tony Bakas	**State**	NSW
Process Conditions	Please refer to client records.		250527

Dioxins & Furans	Results	
Sampling time	0830 - 1432	
	Concentration ng/m³	Mass Rate ng/min
Dioxins & Furans (PCDDs & PCDFs)		
OCDF	1.7	270
OCDD	0.016	2.5
Total TCDF isomers	0.055	8.4
Total TCDD isomers	0.0098	1.5
Total PeCDF isomers	0.059	9.1
Total PeCDD isomers	0.011	1.7
Total HxCDF isomers	0.091	14
Total HxCDD isomers	0.013	2
Total HpCDF isomers	0.45	69
Total HpCDD isomers	0.012	1.8
Total PCDDs + PCDFs	2.4	380
Specified Toxic Dioxins & Furans - TEQs‡		
2,3,7,8-TCDF	0.000089	0.014
2,3,7,8-TCDD	<0.0002	<0.03
1,2,3,7,8-PeCDF	0.00006	0.0092
2,3,4,7,8-PeCDF	0.0011	0.18
1,2,3,7,8-PeCDD	0.00047	0.071
1,2,3,4,7,8-HxCDF	0.001	0.16
1,2,3,6,7,8-HxCDF	0.00087	0.13
2,3,4,6,7,8-HxCDF	0.00078	0.12
1,2,3,7,8,9-HxCDF	0.0001	0.016
1,2,3,4,7,8-HxCDD	0.000064	0.0097
1,2,3,6,7,8-HxCDD	0.000095	0.015
1,2,3,7,8,9-HxCDD	0.000074	0.011
1,2,3,4,6,7,8-HpCDF	0.0029	0.45
1,2,3,4,7,8,9-HpCDF	0.00047	0.071
1,2,3,4,6,7,8-HpCDD	0.000064	0.0097
OCDF	0.00052	0.08
OCDD	0.0000049	0.00075
Total Specified Toxic Dioxins & Furans - TEQs‡		
Lower Bound	0.0088	1.3
Middle Bound	0.0089	1.4
Upper Bound	0.009	1.4

Abbreviations and definitions

‡ NSW EPA 2022-TEQ: TEQs calculated using the NSW POEO (Clean Air) Regulation 2022 TEFs for specified toxic dioxins and furans.

TEQs (Toxic Equivalents)	Calculated by multiplying the quantified result for each toxic compound by its corresponding toxic equivalency factor (TEF).
Lower Bound	Defines values reported below detection as equal to zero.
Middle Bound	Defines values reported below detection are equal to half the detection limit.
Upper Bound	Defines values reported below detection are equal to the detection limit.

Isokinetic Sampling Parameters	Results
Dioxins & Furans	
Sampling time, min	360
Isokinetic rate, %	100

2.4 DP5 – Nitrocellulose Furnace

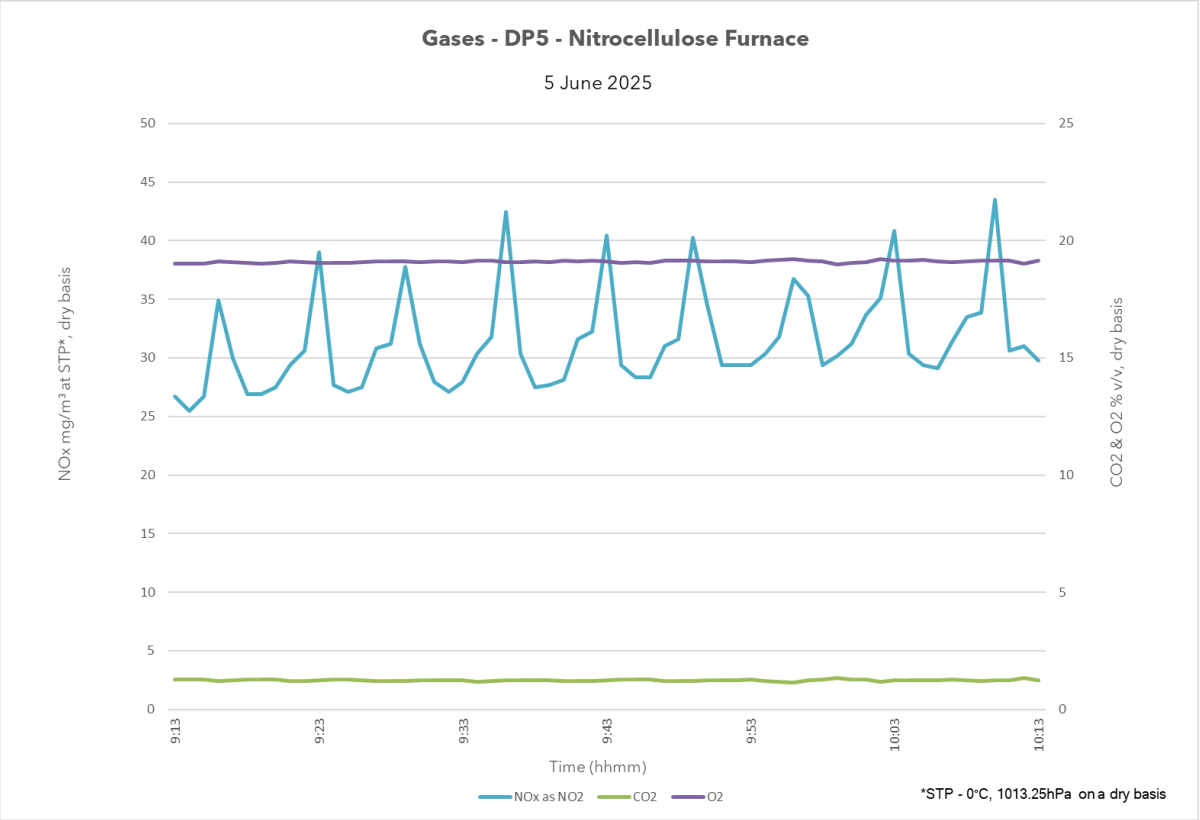
Date	5/06/2025	**Client**	Vertrex Pty Ltd
Report	R018524	**Stack ID**	DP5 - Nitrocellulose Furnace
Licence No.	11947	**Location**	Oaklands
Ektimo Staff	Nick Heatley, Tony Bakas	**State**	NSW
Process Conditions	Please refer to client records.		*250527*

Stack Parameters		
Moisture content, %v/v	2.8	
Gas molecular weight, g/g mole	28.8 (wet)	29.1 (dry)
Gas density at STP, kg/m³	1.28 (wet)	1.30 (dry)
Gas density at discharge conditions, kg/m³	0.70	
Gas Flow Parameters		
Flow measurement time(s) (hhmm)	0805 & 1015	
Temperature, °C	226	
Temperature, K	499	
Ambient pressure, kPa	101	
Stack pressure, kPa	101	
Velocity at sampling plane, m/s	7.9	
Volumetric flow rate, actual, m³/s	1.6	
Volumetric flow rate (wet STP), m³/s	0.85	
Volumetric flow rate (dry STP), m³/s	0.82	
Mass flow rate (wet basis), kg/h	3900	

Isokinetic Results	Results	
Sampling time	0907-1010	
	Concentration mg/m³	Mass Rate g/min
Solid Particles	6.4	0.31
Hydrogen chloride	0.78	0.039
Isokinetic Sampling Parameters		
Sampling time, min	60	
Isokinetic rate, %	100	
Gravimetric analysis date (total particulate)	11-06-2025	

Date	5/06/2025	**Client**	Vertrex Pty Ltd
Report	R018524	**Stack ID**	DP5 - Nitrocellulose Furnace
Licence No.	11947	**Location**	Oaklands
Ektimo Staff	Nick Heatley, Tony Bakas	**State**	NSW
Process Conditions	Please refer to client records.		250527

Gas Analyser Results	Average
Sampling time	0913 - 1013
	Concentration mg/m³ / Mass Rate g/min
Combustion Gases	
Nitrogen oxides (as NO_2)	31 / 1.5
	Concentration % v/v
Carbon dioxide	1.2
Oxygen	19.1



Date	5/06/2025	**Client**	Vertrex Pty Ltd
Report	R018524	**Stack ID**	DP5 - Nitrocellulose Furnace
Licence No.	11947	**Location**	Oaklands
Ektimo Staff	Nick Heatley, Tony Bakas	**State**	NSW
Process Conditions	Please refer to client records.		250527

Isokinetic Results	Results	
Sampling time	0907-1010	
	Concentration mg/m³	Mass Rate g/min
Antimony	**0.001**	**0.000051**
Arsenic	**0.00026**	**0.000013**
Beryllium	<0.00007	<0.000003
Cadmium	**0.0001**	**0.000005**
Chromium	**0.026**	**0.0013**
Cobalt	**0.00028**	**0.000014**
Lead	**0.02**	**0.00099**
Manganese	**0.0027**	**0.00014**
Mercury	<0.0001	<0.000005
Nickel	**0.013**	**0.00067**
Selenium	<0.00009	<0.000004
Tin	**0.0048**	**0.00024**
Vanadium	**0.00028**	**0.000014**
Zinc	**0.017**	**0.00086**
Type 1 & 2 Substances		
Upper Bound		
Total Type 1 Substances	≤0.022	≤0.0011
Total Type 2 Substances	≤0.048	≤0.0024
Total Type 1 & 2 Substances	≤0.07	≤0.0034
Isokinetic Sampling Parameters		
Sampling time, min	60	
Isokinetic rate, %	99	

2.5 DP6 – EBF Baghouse

Date	3/06/2025	**Client**	Vertrex Pty Ltd
Report	R018524	**Stack ID**	DP6 - EBF Baghouse Stack
Licence No.	11947	**Location**	Oaklands
Ektimo Staff	Nick Heatley, Tony Bakas	**State**	NSW
Process Conditions	Please refer to client records		*250527*

Stack Parameters		
Moisture content, %v/v	1.3	
Gas molecular weight, g/g mole	28.8 (wet)	29.0 (dry)
Gas density at STP, kg/m³	1.29 (wet)	1.29 (dry)
Gas density at discharge conditions, kg/m³	1.14	
Gas Flow Parameters		
Flow measurement time(s) (hhmm)	1245 & 1410	
Temperature, °C	30	
Temperature, K	303	
Ambient pressure, kPa	100	
Stack pressure, kPa	100	
Velocity at sampling plane, m/s	21	
Volumetric flow rate, actual, m³/s	3.4	
Volumetric flow rate (wet STP), m³/s	3	
Volumetric flow rate (dry STP), m³/s	2.9	
Mass flow rate (wet basis), kg/h	14000	

Isokinetic Results	Results	
Sampling time	1305-1407	
	Concentration mg/m³	Mass Rate g/min
Zinc	0.0089	0.0016
Isokinetic Sampling Parameters		
Sampling time, min	60	
Isokinetic rate, %	100	

Isokinetic Results	Results	
Sampling time	1305-1407	
	Concentration mg/m³	Mass Rate g/min
Solid Particles	<2	<0.4
Hydrogen chloride	<0.02	<0.004
Isokinetic Sampling Parameters		
Sampling time, min	60	
Isokinetic rate, %	100	
Gravimetric analysis date (total particulate)	11-06-2025	

3 Sample Plane Compliance

3.1 DP2 – Propellant Furnace

Sampling Plane Details	
Sampling plane dimensions	600 mm
Sampling plane area	0.283 m²
Sampling port size, number & depth	4" Flange (x2), 100 mm
Duct orientation & shape	Vertical Circular
Downstream disturbance	Junction 3 D
Upstream disturbance	Junction 4 D
No. traverses & points sampled	2 12
Sample plane conformance to AS 4323.1	Conforming but non-ideal

The sampling plane is deemed to be non-ideal due to the following reasons:
The sampling plane is too near to the upstream disturbance but is greater than or equal to 2D

3.2 MP3 – Afterburner of Propellant Furnace

Sampling Plane Details	
Sampling plane dimensions	600 mm
Sampling plane area	0.283 m²
Sampling port size, number & depth	4" Flange (x2), 100 mm
Duct orientation & shape	Vertical Circular
Downstream disturbance	Junction 3 D
Upstream disturbance	Junction 4 D
No. traverses & points sampled	2 12
Sample plane conformance to AS 4323.1	Conforming but non-ideal

The sampling plane is deemed to be non-ideal due to the following reasons:
The sampling plane is too near to the upstream disturbance but is greater than or equal to 2D

3.3 DP4 – Wet Scrubber

Sampling Plane Details	
Pollution control equipment	Wet scrubber
Sampling plane dimensions	430 mm
Sampling plane area	0.145 m²
Sampling port size, number & depth	4" Flange (x2), 100 mm
Duct orientation & shape	Vertical Circular
Downstream disturbance	Exit >2 D
Upstream disturbance	Centrifugal fan 3.5 D
No. traverses & points sampled	2 12
Sample plane conformance to AS 4323.1	Conforming but non-ideal

The sampling plane is deemed to be non-ideal due to the following reasons:
The sampling plane is too near to the upstream disturbance but is greater than or equal to 2D

3.4 DP5 – Nitrocellulose Furnace

Sampling Plane Details	
Sampling plane dimensions	500 mm
Sampling plane area	0.196 m²
Sampling port size, number & depth	4" Flange (x2), 100 mm
Duct orientation & shape	Vertical Circular
Downstream disturbance	Exit 5 D
Upstream disturbance	Junction 4 D
No. traverses & points sampled	2 12
Sample plane conformance to AS 4323.1	Conforming but non-ideal

The sampling plane is deemed to be non-ideal due to the following reasons:
The sampling plane is too near to the upstream disturbance but is greater than or equal to 2D

3.5 DP6 – EBF Baghouse

Sampling Plane Details	
Pollution control equipment	Filter baghouse
Sampling plane dimensions	450 mm
Sampling plane area	0.159 m²
Sampling port size, number & depth	4" Flange (x2), 125 mm
Duct orientation & shape	Horizontal Circular
Downstream disturbance	Bend 4 D
Upstream disturbance	Bend 6 D
No. traverses & points sampled	2 8
Sample plane conformance to AS 4323.1	Ideal sampling plane

4 Plant Operating Conditions

The below plant operating conditions have been supplied by Vertrex Pty Ltd personnel.

Location	Test Date	Product	Frequency
DP2 – Propellant Afterburner	3 June 2025	Propellant (7.62mm Ball F4)	1 bag per burn with 25 second delay
MP3 – Afterburner of Propellant Furnace	3 June 2025	Propellant (7.62mm Ball F4)	1 bag per burn with 25 second delay
DP4 – Wet Scrubber	4 June 2025	Survitec Hand Flares	1 item every 2 minutes
DP5 – Nitrocellulose Furnace	5 June 2025	Survitec 3 min Smoke Pots	2-minute wait time after the burn is complete, before next item functioned
DP6 – EBF Baghouse	3 June 2025	Sig Illum	1 item every 2 minutes

See Vertrex Pty Ltd records for complete process conditions.

5 Test Methods

All sampling and analysis were performed by Ektimo unless otherwise specified. Specific details of the methods are available upon request.

Parameter	Sampling method	Analysis method	Uncertainty*	NATA accredited Sampling	NATA accredited Analysis
Sampling points - Selection	NSW EPA TM-1 (AS 4323.1)	NA	NA	✓	NA
Flow rate & velocity	AS 4323.1	AS 4323.1	8%, 7%	✓	✓
Moisture (stacks <60°C)	Ektimo 050	Ektimo 050	not specified	✓	✓[j]
Moisture content	NSW EPA TM-22 (USEPA Method 4)	NSW EPA TM-22 (USEPA Method 4)	8%	✓	✓
Molecular weight	NA	NSW EPA TM-23 (USEPA Method 3)	not specified	NA	✓
Dry gas density	NA	NSW EPA TM-23 (USEPA Method 3)	not specified	NA	✓
Carbon dioxide	NSW EPA TM-24 (USEPA Method 3A)	NSW EPA TM-24 (USEPA Method 3A)	13%	✓	✓
Nitrogen oxides	NSW EPA TM-11 (USEPA Method 7E)	NSW EPA TM-11 (USEPA Method 7E)	12%	✓	✓
Oxygen	NSW EPA TM-25 (USEPA Method 3A)	NSW EPA TM-25 (USEPA Method 3A)	13%	✓	✓
Hydrogen halides[2]	NSW EPA TM-8 (USEPA Method 26A)	Ektimo 235	not specified	✓	✓[†i]
Solid particles (total)	NSW EPA TM-15 (AS 4323.2)	NSW EPA TM-15 (AS 4323.2)	3%	✓	✓[††]
Type 1 substances (As, Cd, Hg, Pb, Sb)	NSW EPA TM-12 (USEPA Method 29)	Ektimo 666	not specified	✓	✓[†]
Type 2 substances (Be, Cr, Co, Mn, Ni, Se, Sn, V)	NSW EPA TM-13 (USEPA Method 29)	Ektimo 666	not specified	✓	✓[†]
Metals (Zn)	USEPA Method 29	Ektimo 666	not specified	✓	✓[†]
Dioxins & furans (PCDDs & PCDFs)	NSW EPA TM-18 (USEPA Method 23)	NMI in-house method AUTL_MET_02	16%	✓	✓[¶]

050525

* Uncertainties cited in this table are estimated using typical values and are calculated at the 95% confidence level (coverage factor = 2).

¶ Analysis performed by Australian Government National Measurement Institute, NATA accreditation number 198. Results were reported to Ektimo on 10 July 2025 in report RN1470345.

† Analysis performed by Ektimo. Results were reported on:

- 12 June 2025 in report LV-007350 (Halides).
- 13 June 2025 in report LV-007364 (Metals).

†† Gravimetric analysis conducted at the Ektimo VIC laboratory.

[2] Sampling follows USEPA Method 26A and analysis follows Ektimo 235 (ion chromatography) which uses the same principle as USEPA Method 26A.

[i] Includes analysis of chlorine/chloride by Ektimo 235 which uses the same principle as USEPA Method 26/26A.

[j] Includes analysis of moisture content by Ektimo 050 which uses the same principle as ASTM E337.

6 Deviations to Test Methods

NSW TM-12, 13 - TYPE 1 & 2 SUBSTANCES

Zinc has been sampled according to USEPA Method 29. Although not a listed analyte under the Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (NSW EPA) (2022) TM-12 (Type 1 Substances) or TM-13 (Type 2 Substances) it is an approved analyte listed as part USEPA Method 29.

7 Quality Assurance/Quality Control Information

Ektimo is accredited by the National Association of Testing Authorities (NATA) for the sampling and analysis of air pollutants from industrial sources. Unless otherwise stated test methods used are accredited with the National Association of Testing Authorities. For full details, search for Ektimo at NATA's website www.nata.com.au.

Ektimo is accredited by NATA to ISO/IEC 17025 - Testing. ISO/IEC 17025 - Testing requires that a laboratory have adequate equipment to perform the testing, as well as laboratory personnel with the competence to perform the testing. This quality assurance system is administered and maintained by the Quality Director.

NATA is a member of APAC (Asia Pacific Accreditation Co-operation) and of ILAC (International Laboratory Accreditation Co-operation). Through mutual recognition arrangements with these organisations, NATA accreditation is recognised worldwide.

Unless specifically noted, all samples were collected and handled in accordance with Ektimo's QA/QC standards.

8 Definitions

The following symbols and abbreviations may be used in this test report:

% v/v	Volume to volume ratio, dry basis (except moisture)
~	Approximately
<	Less than
>	Greater than
≥	Greater than or equal to
AS	Australian Standard
BaP-TEQ	Benzo(a)pyrene toxic equivalents
BSP	British standard pipe
CEM/CEMS	Continuous emission monitoring/Continuous emission monitoring system
CTM	Conditional test method
D	Duct diameter or equivalent duct diameter for rectangular ducts
D_{50}	'Cut size' of a cyclone is defined as the particle diameter at which the cyclone achieves a 50% collection efficiency i.e. half of the particles are retained by the cyclone and half pass through it. The D_{50} method simplifies the capture efficiency distribution by assuming that a given cyclone stage captures all of the particles with a diameter equal to or greater than the D_{50} of that cyclone and less than the D_{50} of the preceding cyclone.
DECC	Department of Environment & Climate Change (NSW)
Disturbance	A flow obstruction or instability in the direction of the flow which may impede accurate flow determination. This includes centrifugal fans, axial fans, partially closed or closed dampers, louvres, bends, connections, junctions, direction changes or changes in pipe diameter.
DWER	Department of Water and Environmental Regulation (WA)
DEHP	Department of Environment and Heritage Protection (QLD)
EPA	Environment Protection Authority
FTIR	Fourier transform infra-red
ISC	Intersociety Committee, Methods of Air Sampling and Analysis
ISO	International Organisation for Standardisation
ITE	Individual threshold estimate
I-TEQ	International toxic equivalents
Lower bound	When an analyte is not present above the detection limit, the result is assumed to be equal to zero.
Medium bound	When an analyte is not present above the detection limit, the result is assumed to be equal to half of the detection limit.
NA	Not applicable
NATA	National Association of Testing Authorities
NIOSH	National Institute of Occupational Safety and Health
NT	Not tested or results not required
OM	Other approved method
OU	Odour unit. One OU is that concentration of odorant(s) at standard conditions that elicits a physiological response from a panel equivalent to that elicited by one Reference Odour Mass (ROM), evaporated in one cubic metre of neutral gas at standard conditions.
PM_{10}	Particulate matter having an equivalent aerodynamic diameter less than or equal to 10 microns (µm).
$PM_{2.5}$	Particulate matter having an equivalent aerodynamic diameter less than or equal to 2.5 microns (µm).
PSA	Particle size analysis. PSA provides a distribution of geometric diameters, for a given sample, determined using laser diffraction.
RATA	Relative accuracy test audit
Semi-quantified VOCs	Unknown VOCs (those for which an analytical standard is not available), are identified by matching the mass spectrum of the chromatographic peak to the NIST Standard Reference Database (version 14.0), with a match quality exceeding 70%. An estimated concentration is determined by matching the area of the peak with the nearest suitable compound in the analytical calibration standard mixture.
STP	Standard temperature and pressure. Gas volumes and concentrations are expressed on a dry basis at 0 °C, at discharge oxygen concentration and an absolute pressure of 101.325 kPa.
TM	Test method
TOC	Total organic carbon. This is the sum of all compounds of carbon which contain at least one carbon-to-carbon bond, plus methane and its derivatives.
USEPA	United States Environmental Protection Agency
VDI	Verein Deutscher Ingenieure (Association of German Engineers)
Velocity difference	The percentage difference between the average of initial flows and after flows.
Vic EPA	Victorian Environment Protection Authority
VOC	Volatile organic compound. A carbon-based chemical compound with a vapour pressure of at least 0.010 kPa at 25°C or having a corresponding volatility under the given conditions of use. VOCs may contain oxygen, nitrogen and other elements. VOCs do not include carbon monoxide, carbon dioxide, carbonic acid, metallic carbides and carbonate salts.
WHO05-TEQ	World Health Organisation toxic equivalents
XRD	X-ray diffractometry
Upper bound	When an analyte is not present above the detection limit, the result is assumed to be equal to the detection limit.
95% confidence interval	Range of values that contains the true result with 95% certainty. This means there is a 5% risk that the true result is outside this range.

9 Appendices

Appendix A: Site Images

Image 1. DP2 – Propellant Furnace

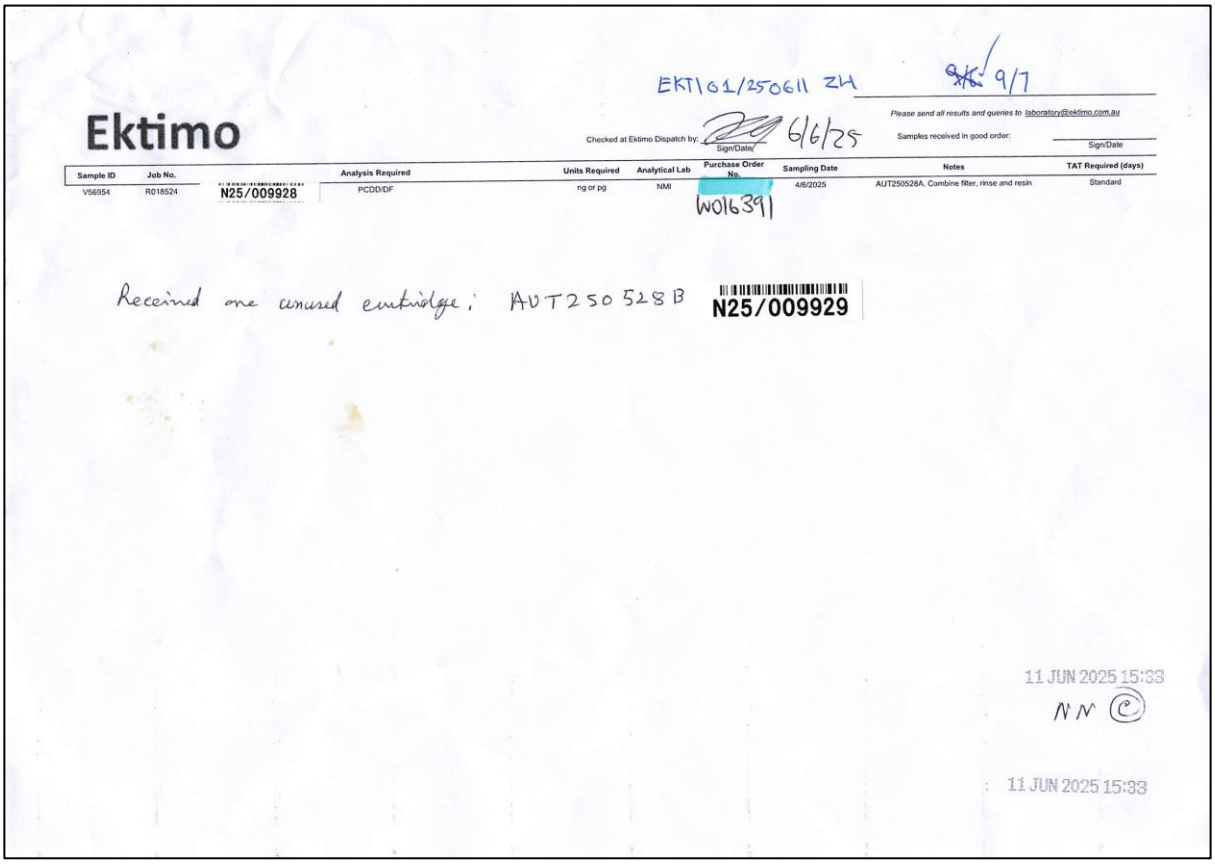
Image 2. MP3 – Afterburner of Propellant Furnace

Image 3. DP4 – Wet Scrubber

Image 4. DP5 – Nitrocellulose Furnace

Image 5. DP6 – EBF Baghouse

Appendix B: Chain of Custody



Ektimo

EKTI01/250611 ZH 9/7

Please send all results and queries to laboratory@ektimo.com.au

Checked at Ektimo Dispatch by: Sign/Date 6/6/25

Samples received in good order: Sign/Date

Sample ID	Job No.		Analysis Required	Units Required	Analytical Lab	Purchase Order No.	Sampling Date	Notes	TAT Required (days)
V56954	R018524	N25/009928	PCDD/DF	ng or pg	NMI	W016391	4/6/2025	AUT250528A. Combine filter, rinse and resin	Standard

Received one unused cartridge: AUT250528B N25/009929

11 JUN 2025 15:33

NN

11 JUN 2025 15:33

Appendix C: Laboratory Results

1300 364 005
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info@ektimo.com.au
ektimo.com.au
ABN 86 600 381 413

CERTIFICATE OF ANALYSIS

Testing Laboratory:	Ektimo 26 Redland Drive Mitcham, VIC 3132
Report Number:	LV-007364
Job Number:	R018524
Date of Issue:	13/06/2025
Attention:	Vertrex
Address:	Answerth Drive Oaklands NSW 2646
Date samples received:	6/06/2025
Number of samples received:	19
Date samples analysed:	11/06/2025
No of samples analysed:	19
Test method(s) used:	Ektimo 666

Comments

QC Acceptance Criteria:

Parameter	Criteria	Pass/Fail
Standard Curve	$R^2 > 0.99$	Pass
Range	All samples <110% of highest standard	Pass
Repeat samples	Between 70% - 130%	Pass
Method Blanks	All method blanks < PQL	Pass
QC sample	2 standard deviations of theoretical	Pass
Chemical Expiry	All chemicals within expiry date	Pass

This report supersedes any previous report(s) with this reference. Sample(s) have been analysed as received.

Ektimo is accredited by the National Association of Testing Authorities (NATA) for the sampling and analysis of air pollutants from industrial sources. Unless otherwise stated test methods used are accredited with the National Association of Testing Authorities. For full details, search for Ektimo at NATA's website www.nata.com.au.
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NATA is a member of APAC (Asia Pacific Laboratory Accreditation Co-operation) and of ILAC (International Laboratory Accreditation Co-operation). Through the mutual recognition arrangements with both of these organisations, NATA accreditation is recognised world -wide.
A formal Quality Control program is in place at Ektimo to monitor analyses performed in the laboratory and sampling conducted in the field. The program is designed to check where appropriate; the sampling reproducibility, analytical method, accuracy, precision and the performance of the analyst. The Laboratory Manager is responsible for the administration and maintenance of this program.

REPORT AUTHORISATION

Version: 060525

Cappi Tuffery
Laboratory Chemist

Daniel Balaam
Senior Laboratory Chemist

NATA Accredited Laboratory 14601

Accredited for compliance with ISO/IEC 17025. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports.

Ektimo

Analytical Results

Report No. LV-007364
Job No. R018524
Client Name: Vertrex

Parameter	PQL	Units	V56930 R018524	V56931 R018524	V56932 R018524	V56933 R018524
Volume	1	mL				
Antimony	1	µg/L				
Arsenic	0.1	µg/L				
Beryllium	0.1	µg/L				
Cadmium	0.1	µg/L				
Chromium	1	µg/L				
Cobalt	0.1	µg/L				
Lead	1	µg/L				
Manganese	1	µg/L				
Mercury	0.1	µg/L				
Nickel	1	µg/L				
Selenium	0.1	µg/L				
Tin	1	µg/L				
Vanadium	0.1	µg/L				
Zinc	1	µg/L				
Antimony (Total)	0.31	µg				
Arsenic (Total)	0.031	µg				
Beryllium (Total)	0.031	µg				
Cadmium (Total)	0.031	µg				
Chromium (Total)	0.31	µg				
Cobalt (Total)	0.031	µg				
Lead (Total)	0.31	µg				
Manganese (Total)	0.31	µg				
Mercury (Total)	0.031	µg				
Nickel (Total)	0.31	µg				
Selenium (Total)	0.031	µg				
Tin (Total)	0.31	µg				
Vanadium (Total)	0.031	µg				
Zinc (Total)	0.31	µg	0.54	8.2	1.4	0.86

* Results marked with an asterisk are outside the acceptable calibration range of the instrument.

NATA Accredited Laboratory 14601

Ektimo

Analytical Results

Report No. LV-007364
Job No. R018524
Client Name: Vertrex

Parameter	PQL	Units	V56934 R018524	V56935 R018524	V56936 R018524	V56937 R018524
Volume	1	mL				185
Antimony	1	µg/L				<1
Arsenic	0.1	µg/L				<0.1
Beryllium	0.1	µg/L				<0.1
Cadmium	0.1	µg/L				<0.1
Chromium	1	µg/L				3.1
Cobalt	0.1	µg/L				<0.1
Lead	1	µg/L				<1
Manganese	1	µg/L				<1
Mercury	0.1	µg/L				<0.1
Nickel	1	µg/L				2.4
Selenium	0.1	µg/L				<0.1
Tin	1	µg/L				2.1
Vanadium	0.1	µg/L				<0.1
Zinc	1	µg/L				13
Antimony (Total)	0.31	µg		<0.31	1.1	
Arsenic (Total)	0.031	µg		<0.031	0.27	
Beryllium (Total)	0.031	µg		<0.031	<0.031	
Cadmium (Total)	0.031	µg		<0.031	0.063	
Chromium (Total)	0.31	µg		2.2	29	
Cobalt (Total)	0.031	µg		<0.031	0.23	
Lead (Total)	0.31	µg		<0.31	20	
Manganese (Total)	0.31	µg		<0.31	1.7	
Mercury (Total)	0.031	µg		<0.031	<0.031	
Nickel (Total)	0.31	µg		0.95	9.4	
Selenium (Total)	0.031	µg		<0.031	<0.031	
Tin (Total)	0.31	µg		<0.31	0.51	
Vanadium (Total)	0.031	µg		<0.031	0.27	
Zinc (Total)	0.31	µg	33	1.1	8.2	

* Results marked with an asterisk are outside the acceptable calibration range of the instrument.

NATA Accredited Laboratory 14601

Ektimo

Ektimo Analytical Results

Report No. LV-007364
Job No. R018524
Client Name: Vertrex

Parameter	PQL	Units	V56938 R018524	V56939 R018524	V56940 R018524	V56941 R018524
Volume	1	mL	215	252	195	190
Antimony	1	µg/L				<1
Arsenic	0.1	µg/L				<0.1
Beryllium	0.1	µg/L				<0.1
Cadmium	0.1	µg/L				0.1
Chromium	1	µg/L				4.4
Cobalt	0.1	µg/L				0.14
Lead	1	µg/L				2
Manganese	1	µg/L				2.1
Mercury	0.1	µg/L				<0.1
Nickel	1	µg/L				8.3
Selenium	0.1	µg/L				0.19
Tin	1	µg/L				17
Vanadium	0.1	µg/L				<0.1
Zinc	1	µg/L	82	30	<1	34
Antimony (Total)	0.31	µg				
Arsenic (Total)	0.031	µg				
Beryllium (Total)	0.031	µg				
Cadmium (Total)	0.031	µg				
Chromium (Total)	0.31	µg				
Cobalt (Total)	0.031	µg				
Lead (Total)	0.31	µg				
Manganese (Total)	0.31	µg				
Mercury (Total)	0.031	µg				
Nickel (Total)	0.31	µg				
Selenium (Total)	0.031	µg				
Tin (Total)	0.31	µg				
Vanadium (Total)	0.031	µg				
Zinc (Total)	0.31	µg				

* Results marked with an asterisk are outside the acceptable calibration range of the instrument.

NATA Accredited Laboratory 14601

Ektimo Analytical Results

Report No. LV-007364
Job No. R018524
Client Name: Vertrex

Parameter	PQL	Units	V56942 R018524	V56943 R018524	V56944 R018524	V56945 R018524
Volume	1	mL	200	195	145	185
Antimony	1	µg/L	<1			
Arsenic	0.1	µg/L	<0.1			
Beryllium	0.1	µg/L	<0.1			
Cadmium	0.1	µg/L	<0.1			
Chromium	1	µg/L	<1			
Cobalt	0.1	µg/L	<0.1			
Lead	1	µg/L	<1			
Manganese	1	µg/L	<1			
Mercury	0.1	µg/L	<0.1			
Nickel	1	µg/L	<1			
Selenium	0.1	µg/L	<0.1			
Tin	1	µg/L	<1			
Vanadium	0.1	µg/L	<0.1			
Zinc	1	µg/L	<1	52	18	32
Antimony (Total)	0.31	µg				
Arsenic (Total)	0.031	µg				
Beryllium (Total)	0.031	µg				
Cadmium (Total)	0.031	µg				
Chromium (Total)	0.31	µg				
Cobalt (Total)	0.031	µg				
Lead (Total)	0.31	µg				
Manganese (Total)	0.31	µg				
Mercury (Total)	0.031	µg				
Nickel (Total)	0.31	µg				
Selenium (Total)	0.031	µg				
Tin (Total)	0.31	µg				
Vanadium (Total)	0.031	µg				
Zinc (Total)	0.31	µg				

* Results marked with an asterisk are outside the acceptable calibration range of the instrument.

NATA Accredited Laboratory 14601

Results page 5 of 6

Ektimo

Ektimo Analytical Results

Report No. LV-007364
Job No. R018524
Client Name: Vertrex

Parameter	PQL	Units	V56946 R018524	V56947 R018524	V56948 R018524
Volume	1	mL	195	355	335
Antimony	1	µg/L	<1		
Arsenic	0.1	µg/L	<0.1		
Beryllium	0.1	µg/L	<0.1		
Cadmium	0.1	µg/L	0.13		
Chromium	1	µg/L	3.6		
Cobalt	0.1	µg/L	0.18		
Lead	1	µg/L	4.8		
Manganese	1	µg/L	4.1		
Mercury	0.1	µg/L	<0.1	<0.1	<0.1
Nickel	1	µg/L	24		
Selenium	0.1	µg/L	0.12		
Tin	1	µg/L	8.9		
Vanadium	0.1	µg/L	0.11		
Zinc	1	µg/L	37		
Antimony (Total)	0.31	µg			
Arsenic (Total)	0.031	µg			
Beryllium (Total)	0.031	µg			
Cadmium (Total)	0.031	µg			
Chromium (Total)	0.31	µg			
Cobalt (Total)	0.031	µg			
Lead (Total)	0.31	µg			
Manganese (Total)	0.31	µg			
Mercury (Total)	0.031	µg			
Nickel (Total)	0.31	µg			
Selenium (Total)	0.031	µg			
Tin (Total)	0.31	µg			
Vanadium (Total)	0.031	µg			
Zinc (Total)	0.31	µg			

* Results marked with an asterisk are outside the acceptable calibration range of the instrument.

NATA Accredited Laboratory 14601

Results page 6 of 6

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ektimo.com.au
ABN 86 600 381 413

CERTIFICATE OF ANALYSIS

Testing Laboratory:	Ektimo 26 Redland Drive Mitcham, VIC 3132
Report Number:	LV-007350
Job Number:	R018524
Date of Issue:	12/06/2025
Attention:	Vertrex
Address:	Answerth Drive Oaklands NSW 2646
Date samples received:	6/06/2025
Number of samples received:	5
Date samples analysed:	10/06/2025
No of samples analysed:	5
Test method(s) used:	Ektimo 235

Comments

QC Acceptance Criteria:

Parameter	Criteria	Pass/Fail
Standard Curve	$R^2 > 0.99$	Pass
Range	All samples <110% of highest standard	Pass
Repeat samples	Between 80% - 120%	Pass
Method Blanks	All method blanks < PQL	Pass
QC sample	2 standard deviations of theoretical	Pass
Chemical Expiry	All chemicals within expiry date	Pass

This report supersedes any previous report(s) with this reference. Sample(s) have been analysed as received.

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REPORT AUTHORISATION

Version: 060525

Annie Kolokithas
Laboratory Technician

Cappi Tuffery
Laboratory Chemist

NATA Accredited Laboratory 14601

Accredited for compliance with ISO/IEC 17025. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports.

Ektimo

Analytical Results

Report No. LV-007350
Job No. R018524
Client Name: Vertrex

Parameter	PQL	Units	V56949 R018524	V56950 R018524	V56951 R018524	V56952 R018524
Volume	1	mL	230	216	194	285
Hydrogen chloride (HCl) as Cl	0.1	mg/L	<0.1	0.29	0.1	3.6

* Results marked with an asterisk are outside the acceptable calibration range of the instrument.

NATA Accredited Laboratory 14601

Ektimo

Analytical Results

Report No. LV-007350
Job No. R018524
Client Name: Vertrex

Parameter	PQL	Units	V56953 R018524
Volume	1	mL	250
Hydrogen chloride (HCl) as Cl	0.1	mg/L	2.2

* Results marked with an asterisk are outside the acceptable calibration range of the instrument.

NATA Accredited Laboratory 14601

Results page 3 of 3

Australian Government
Department of Industry, Science and Resources

National Measurement Institute

NATA

REPORT OF ANALYSIS

Report No. RN1470345

Client	: EKTIMO PTY LTD	**Job No.**	: EKTI01/250611
	52 COOPER ROAD	**Quote No.**	: QT-02288
	COCKBURN CENTRAL WA 6164	**Order No.**	: W016391
		Date Sampled	:
		Date Received	: 11-JUN-2025
Attention	:	**Sampled By**	: CLIENT
Project Name	:		
For Follow up enquiries	: ASB@measurement.gov.au	**Phone**	: 1300 722 845

Lab Reg No.	Sample Ref	Sample Description
N25/009928	V56954	AUT250528A FILTER RESIN RINSE R018524

Lab Reg No. / Sample Reference	Units	N25/009928 V56954		Method
Components				
Cartridge Preparation Charge		AUT250528A		
Dioxin/Furan International Toxic Equivalency (iTEQ)				
Lower bound iTEQDF	pg	50		AUT_MET002
Middle bound iTEQDF	pg	50		AUT_MET002
Upper bound iTEQDF	pg	51		AUT_MET002
Dioxin and Furan Toxic congeners				
2378-TCDF (51207-31-9)	pg	4.2		AUT_MET002
2378-TCDD (1746-01-6)	pg	<1		AUT_MET002
12378-PeCDF (57117-41-6)	pg	9.4		AUT_MET002
23478-PeCDF (57117-31-4)	pg	18		AUT_MET002
12378-PeCDD (40321-76-4)	pg	2.2		AUT_MET002
123478-HxCDF (70648-26-9)	pg	49		AUT_MET002
123678-HxCDF (57117-44-9)	pg	41		AUT_MET002
234678-HxCDF (60851-34-5)	pg	37		AUT_MET002
123789-HxCDF (72918-21-9)	pg	4.8		AUT_MET002
123478-HxCDD (39227-28-6)	pg	3.0		AUT_MET002
123678-HxCDD (57653-85-7)	pg	4.5		AUT_MET002
123789-HxCDD (19408-74-3)	pg	3.5		AUT_MET002
1234678-HpCDF (67562-39-4)	pg	1390		AUT_MET002
1234789-HpCDF (55673-89-7)	pg	220		AUT_MET002
1234678-HpCDD (35822-46-9)	pg	30		AUT_MET002
OCDF (39001-02-0)	pg	8170		AUT_MET002
OCDD (3268-87-9)	pg	77		AUT_MET002
Total homologue groups				
Total TCDF isomers	pg	260		AUT_MET002
Total TCDD isomers	pg	46		AUT_MET002
Total PeCDF isomers	pg	280		AUT_MET002
Total PeCDD isomers	pg	52		AUT_MET002
Total HxCDF isomers	pg	430		AUT_MET002
Total HxCDD isomers	pg	61		AUT_MET002

REPORT OF ANALYSIS

Lab Reg No.		N25/009928		
Sample Reference	Units	V56954		Method
Total homologue groups				
Total HpCDF isomers	pg	2120		AUT_MET002
Total HpCDD isomers	pg	56		AUT_MET002
Labelled Field Surrogate Recoveries				
23478-PeCDF (13C12) (116843-02-8)	%	137		AUT_MET002
123478-HxCDF (13C12) (114423-98-2)	%	140		AUT_MET002
123478-HxCDD (13C12) (109719-80-4)	%	140		AUT_MET002
1234789-HpCDF (13C12) (109719-94-0)	%	126		AUT_MET002
Labelled Internal Standard Recoveries				
2378-TCDF (13C12) (89059-46-1)	%	69		AUT_MET002
2378-TCDD (13C12) (76523-40-5)	%	75		AUT_MET002
12378-PeCDF (13C12) (109719-77-9)	%	64		AUT_MET002
12378-PeCDD (13C12) (109719-79-1)	%	76		AUT_MET002
123678-HxCDF (13C12) (116843-03-9)	%	75		AUT_MET002
123678-HxCDD (13C12) (109719-81-5)	%	86		AUT_MET002
1234678-HpCDF (13C12) (109719-84-8)	%	78		AUT_MET002
1234678-HpCDD (13C12) (109719-83-7)	%	90		AUT_MET002
OCDD (13C12) (114423-97-1)	%	98		AUT_MET002
Extraction				
Pressurised Solvent Extraction		27-JUN-2025		AUT_MET_01
Purification				
Automated column chromatography DF		30-JUN-2025		AUT_MET_01
Dioxin/Furan International Toxic Equivalency Factors (iTEF)				
iTEF 2378-TCDF		0.1		AUT_MET002
iTEF 2378-TCDD		1		AUT_MET002
iTEF 12378-PeCDF		0.05		AUT_MET002
iTEF 23478-PeCDF		0.5		AUT_MET002
iTEF 12378-PeCDD		0.5		AUT_MET002
iTEF 123478-HxCDF		0.1		AUT_MET002
iTEF 123678-HxCDF		0.1		AUT_MET002
iTEF 234678-HxCDF		0.1		AUT_MET002
iTEF 123789-HxCDF		0.1		AUT_MET002
iTEF 123478-HxCDD		0.1		AUT_MET002
iTEF 123678-HxCDD		0.1		AUT_MET002
iTEF 123789-HxCDD		0.1		AUT_MET002
iTEF 1234678-HpCDF		0.01		AUT_MET002
iTEF 1234789-HpCDF		0.01		AUT_MET002
iTEF 1234678-HpCDD		0.01		AUT_MET002
iTEF OCDF		0.001		AUT_MET002
iTEF OCDD		0.001		AUT_MET002
Analysis Dates				
Emission Sampled		4-JUN-2025		AUT_MET002
Emission Extracted Dioxin		27-JUN-2025		AUT_MET002

REPORT OF ANALYSIS

Lab Reg No.		N25/009928		
Sample Reference	Units	V56954		Method
Analysis Dates				
Emission HRMS Dioxin analysis		2-JUL-2025		AUT_MET002
Emission Confirmation Dioxin analysis		1-JUL-2025		AUT_MET002
Emission Holding times		Extract/Analyse Met		AUT_MET002

All results are expressed on an as received weight basis. iTEF defined in USEPA publication EPA/625/3-89/016 (1989), WHO TEFs defined by Van den Berg et al., Toxicol. Sci. 93(2), pp. 223241 (2006).
Labelled surrogates acceptance criteria: 70-130% for field - 40-130% for Tetra/Penta/Hexa - 25-130% for Hepta/Octa - 40-120% for PCB congeners.

Alan Yates, Analyst
Australian Ultra Trace Laboratory
Accreditation No. 198

10-JUL-2025

NATA
WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing.
This report shall not be reproduced except in full.
Results relate only to the sample(s) as received and tested.

* Denotes the analyte or test method is not within our ISO/IEC 17025 scope of accreditation.

Measurement Uncertainty is available upon request.
The testing was undertaken at: 105 Delhi Road, North Ryde, NSW, 2113

Ektimo

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