Ektimo

Experts in air quality, odour and emission monitoring.

Works Approval Emission Testing

May 2025

Report: R018950

CTS Tyre Recycling, Neerabup

ilac-MRA NATA

Document Information

Client Name:	CTS Tyre Recycling
Report Number:	R018950
Date of Issue:	30 May 2025
Attention:	[redacted]
Address:	
Testing Laboratory:	Ektimo Pty Ltd, ABN 86 600 381 413

Report Authorisation

[redacted]

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 Project Objective & Overview

Ektimo was engaged by CTS Tyre Recycling to perform emission testing at their Neerabup plant. Testing was carried out in accordance with DWER Works Approval W6848/2023/1.

The objective of the project was to quantify emissions from one discharge points to determine compliance with CTS Tyre Recycling's Environmental Licence.

Monitoring was performed as follows:

Location	Test Date	Test Parameters*
E1 – Exhaust Stack	28 May 2025	Total particulate matter Particulate matter <10 µm

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

All results are reported on a dry basis at STP

1.2 Licence Comparison Table

The following licence comparison table shows that all analytes are within the licence limit set by the DWER WA as per works approval W6848/2023/1.

Location ID	Location Description	Pollutant	Units	Licence Limit	Detected Values
E1	Exhaust stack	Total particulate matter	mg/m³ at STP dry	<5	<1

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 E1 – Exhaust stack

Date	28/05/2025	**Client**	CTS Tyre Recycling
Report	R018950	**Stack ID**	Exhaust stack
Licence No.	W6848/2023/1	**Location**	Neerabup
Ektimo Staff	Ashley Hart/ Ciaran Murphy	**State**	WA
Process Conditions	Please refer to client records.		250527

Stack Parameters		
Moisture content, %v/v	1.3	
Gas molecular weight, g/g mole	28.9 (wet)	29.0 (dry)
Gas density at STP, kg/m³	1.29 (wet)	1.29 (dry)
Gas density at discharge conditions, kg/m³	1.21	
Gas Flow Parameters		
Temperature, °C	18	
Ambient pressure, kPa	102	
Stack pressure, kPa	102	
Velocity at sampling plane, m/s	16	
Volumetric flow rate, actual, m³/min	1100	
Volumetric flow rate (wet STP), m³/min	1000	
Volumetric flow rate (dry STP), m³/min	1000	
Mass flow rate (wet basis), kg/h	80000	

Isokinetic Results	Average		Test 1		Test 2	
Sampling time			1210-1312		1325-1427	
	Concentration mg/m³	Mass Rate g/min	Concentration mg/m³	Mass Rate g/min	Concentration mg/m³	Mass Rate g/min
Total particulate matter	<1	<1	<1	<1	<1	<1
Isokinetic Sampling Parameters						
Sampling time, min			60		60	
Isokinetic rate, %			99		99	
Gravimetric analysis date (total particulate)			30-05-2025		30-05-2025	

Isokinetic Results	Average		Test 1		Test 2	
Sampling time			1210-1312 (PM10)		1325-1427 (PM10)	
	Concentration mg/m³	Mass Rate g/min	Concentration mg/m³	Mass Rate g/min	Concentration mg/m³	Mass Rate g/min
PM10	<3	<3	<3	<3	<3	<3
D50 cut size, 10µm			10.4		10.8	
Isokinetic Sampling Parameters						
Sampling time, min				60		60
Isokinetic rate, %				109		103
Gravimetric analysis date (PM_{10})			30-05-2025		30-05-2025	

3 Sample Plane Compliance

3.1 E1 – Exhaust stack

Sampling Plane Details	
Sampling plane dimensions	1220 mm
Sampling plane area	1.17 m²
Sampling port size, number & depth	4" x 2, 5 mm
Duct orientation & shape	Vertical Circular
Downstream disturbance	Change in diameter 2 D
Upstream disturbance	Change in diameter 3 D
No. traverses & points sampled	2 20
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 downstream disturbance but is greater than or equal to 1D
The sampling plane is too near to the upstream disturbance but is greater than or equal to 2D

4 Plant Operating Conditions

See CTS Tyre Recycling 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	AS 4323.1	NA	NA	✓	NA
Flow rate, temperature & velocity	USEPA Method 2	USEPA Method 2	8%, 2%, 7%	NA	✓
Moisture	USEPA Method 4	USEPA Method 4	8%	✓	✓
Carbon dioxide & oxygen	USEPA Method 3A	USEPA Method 3A	13%	✓	✓
Total particulate matter	USEPA Method 5	USEPA Method 5	7%	✓	✓††
Particulate matter (PM_{10})	USEPA Method 201A	USEPA Method 201A	9%	✓	✓††

150525

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

†† Gravimetric analysis conducted at the Ektimo WA laboratory.

6 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.

7 Definitions

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

% v/v	Volume to volume ratio, dry basis
~	Approximately
<	Less than
>	Greater than
≥	Greater than or equal to
AS	Australian Standard
BSP	British standard pipe
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.
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
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).
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
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.
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

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