

Ektimo

Shred-X, Wetherill Park

Emission Testing Report

Report R016113

ektimo.com.au



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: Shred-X
Report Number: R016113
Date of Issue: 4 December 2023
Attention: Prabhat Zala
Address: 29C Davis Rd
Wetherill Park NSW 2164
Testing Laboratory: Ektimo Pty Ltd, ABN 86 600 381 413

Report Authorisation



Zoe Parker
Air Monitoring Consultant



NATA Accredited Laboratory
No. 14601



Aaron Davis
Ektimo Signatory

This document is confidential and is prepared for the exclusive use of Shred-X and those granted permission by Shred-X. The report shall not be reproduced except in full.

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.

Table of Contents

1	Executive Summary	4
1.1	Background	4
1.2	Project Objective & Overview	4
1.3	Licence Comparison	4
2	Results	5
2.1	EPA 1 – Dust Collector System Ventilation Stack	5
3	Sample Plane Compliance	6
3.1	EPA 1 – Dust Collector System Ventilation Stack	6
4	Plant Operating Conditions	6
5	Test Methods	6
6	Quality Assurance/Quality Control Information	7
7	Definitions	7

1 Executive Summary

1.1 Background

Ektimo was engaged by Shred-X to perform emission testing at their Wetherill Park plant. Testing was carried out in accordance with Environment Protection Licence 21426.

1.2 Project Objective & Overview

The objective of the project was to quantify emissions from one (1) discharge point to determine compliance with Shred-X's Environmental Licence.

Monitoring was performed as follows:

Location	Test Date	Test Parameters*
EPA 1 – Dust Collector System Ventilation Stack	21 November 2023	Solid particles Oxygen (O ₂), carbon dioxide (CO ₂)

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

All results are reported on a dry basis at STP.

1.3 Licence Comparison

The following licence comparison table shows that all analytes are within the licence limit set by the NSW EPA as per licence 21426 (last amended on 01 November 2021).

EPA No.	Location Description	Parameter	Units	Licence limit	Detected Values 21/11/2023
1	Dust Collector System Ventilation Stack	Solid Particles	mg/m ³	20	2.9

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 EPA 1 – Dust Collector System Ventilation Stack

Date	21/11/2023	Client	Shred-X
Report	R016113	Stack ID	EPA 1 – Dust Collector System Ventilation Stack
Licence No.	21426	Location	Wetherill Park
Ektimo Staff	Mohamed Trabelsi/ James Cullen	State	NSW
Process Conditions	Please refer to client records.		

231018

Stack Parameters		
Moisture content, %v/v	2.7	
Gas molecular weight, g/g mole	28.7 (wet)	29.0 (dry)
Gas density at STP, kg/m ³	1.28 (wet)	1.29 (dry)
Gas density at discharge conditions, kg/m ³	1.18	
Gas Flow Parameters		
Flow measurement time(s) (hhmm)	0930 & 1110	
Temperature, °C	25	
Temperature, K	298	
Velocity at sampling plane, m/s	14	
Volumetric flow rate, actual, m ³ /s	4.8	
Volumetric flow rate (wet STP), m ³ /s	4.4	
Volumetric flow rate (dry STP), m ³ /s	4.3	
Mass flow rate (wet basis), kg/h	20000	

Gas Analyser Results		Average
	Sampling time	0949 - 1052
		Concentration
		% v/v
Carbon dioxide		<0.4
Oxygen		20.8

Isokinetic Results		Results
	Sampling time	0949-1052
		Concentration
		mg/m ³
		Mass Rate
		g/min
Solid Particles		2.9
		0.73
Isokinetic Sampling Parameters		
Sampling time, min		60
Isokinetic rate, %		103
Gravimetric analysis date (total particulate)		24-11-2023

3 Sample Plane Compliance

3.1 EPA 1 – Dust Collector System Ventilation Stack

Sampling Plane Details	
Sampling plane dimensions	650 mm
Sampling plane area	0.332 m ²
Sampling port size, number & depth	4" BSP (x2), 85 mm
Duct orientation & shape	Vertical Circular
Downstream disturbance	Exit >2 D
Upstream disturbance	Bend 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	

4 Plant Operating Conditions

See Shred-X records for complete process conditions.

Based on information received from Shred-X personnel, it is our understanding that samples were collected during typical plant operations.

5 Test Methods

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

Parameter	Sampling method	Analysis method	Uncertainty*	NATA accredited	
				Sampling	Analysis
Sampling points - Selection	NSW EPA TM-1 (AS 4323.1)	NA	NA	✓	NA
Flow rate, temperature & velocity	NSW EPA TM-2 (USEPA Method 2)	NSW EPA TM-2 (USEPA Method 2)	8%, 2%, 7%	NA	✓
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%	✓	✓
Oxygen	NSW EPA TM-25 (USEPA Method 3A)	NSW EPA TM-25 (USEPA Method 3A)	13%	✓	✓
Solid particles (total)	NSW EPA TM-15 (AS 4323.2)	NSW EPA TM-15 (AS 4323.2)	3%	✓	✓ ^{††}

311023

* 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 NSW 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
~	Approximately
<	Less than
>	Greater than
≥	Greater than or equal to
AS	Australian Standard
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.
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
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
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.



Ektimo

ektimo.com.au

1300 364 005

MELBOURNE (Head Office)

26 Redland Drive
Mitcham
VIC 3132
AUSTRALIA

SYDNEY

6/78 Reserve Road
Artarmon
NSW 2064
AUSTRALIA

WOLLONGONG

1/251 Princes Highway
Unanderra
NSW 2526
AUSTRALIA

PERTH

52 Cooper Road
Cockburn Central
WA 6164
AUSTRALIA

BRISBANE

3/109 Riverside Place
Morningside
QLD 4170
AUSTRALIA