

VERIFICATION STATEMENT

GLOBE Performance Solutions

Verifies the performance of

Eco Waste Oxidizer

Developed by Eco Waste Solutions
Burlington, Ontario, Canada

In accordance with

ISO 14034:2016

**Environmental Management —
Environmental Technology Verification (ETV)**



John D. Wiebe, PhD
Executive Chairman
GLOBE Performance Solutions

May 31, 2018
Vancouver, BC, Canada



Verification Body
GLOBE Performance Solutions
404 – 999 Canada Place | Vancouver, B.C | Canada |V6C 3E2

Performance claims

The Eco Waste Oxidizer, manufactured by Eco Burn Inc. o/a Eco Waste Solutions, is a two-stage thermal gasification system capable of meeting the stack emission criteria specified below, when used to incinerate municipal solid waste, and when the minimum temperature and minimum residence time in the afterburner are 1,000°C and 3.2 seconds, respectively.

Parameter	Stack Emission Criteria	Unit
Particulate	12	mg/Rm ³
Pb + Mn + Cr + Cu	1	mg/Rm ³
As + Ni	0.02	mg/Rm ³
Cd + Hg	0.1	mg/Rm ³
Dioxin / Furan *	0.09	ng I-TEQ/Rm ³
SO ₂ **	39	mg/Rm ³
NOx	136	mg/Rm ³
CO	1.3	mg/Rm ³

* I-TEQ refers to international toxicity equivalent factor (2,3,7,8-TCDD)

** Emissions exclude diesel fuel auxiliary burner SO₂ and NOx contributions.

R indicates the reference measurement conditions for emissions, which are: temperature = 25°C, pressure = 101.3 kPa, and O₂ content = 11% dry.

Technology Description

The Eco Waste Oxidizer is a batch-mode two-stage thermal oxidation system for incinerating solid waste. In the first stage, waste is oxidized in the combustion chamber by means of a gas or oil fired burner. Off gases from the first stage are combusted in the second stage (afterburner) and then emitted via a stack. Critical process parameters in both stages are computer controlled. The complete oxidation cycle, which consists of loading, combustion, cooling and ash removal, occurs over twenty four hours. The actual oxidation process occurs over an 8 to 10 hour period.

Technology Application

The Eco Waste Oxidizer can be used for the thermal oxidation of municipal, medical and industrial waste. The verified performance claim is based on the incineration of municipal solid waste.

Performance Conditions

The average operating conditions in the afterburner during the claim assessment period were:

Run	Temperature (°C)	Residence Time (sec)
1	999	3.1
2	996	3.1
3	1,002	3.2

Verification

This verification was first completed in June 1997 and has been considered valid for subsequent renewal periods every three (3) years thereafter. The data set analyzed for claim verification was generated for a compliance test performed on full-scale system in Burlington, Ontario. The test was performed by EcoSphere Environmental Inc., between May 15 - 17, 1996, with all protocols accepted by the Ontario Ministry of the Environment and Energy (MOEE). The loadings to the incinerator on the three test days were 794 kg, 801 kg, and 1,062 kg of municipal solid waste.

The original verification of the performance claim based on this data was carried out by the Water Technology International Corporation (WTI). The data was analyzed using various statistical methods, including one-tailed and two-tailed hypothesis tests. This ETV renewal is considered to meet the equivalency of an ETV verification completed using the International Standard *ISO 14034:2016 Environmental management – Environmental technology verification (ETV)*.

What is ISO 14034:2016 Environmental management – Environmental technology verification (ETV)?

ISO 14034:2016 specifies principles, procedures and requirements for environmental technology verification (ETV), and was developed and published by the *International Organization for Standardization (ISO)*. The objective of ETV is to provide credible, reliable and independent verification of the performance of environmental technologies. An environmental technology is a technology that either results in an environmental added value or measures parameters that indicate an environmental impact. Such technologies have an increasingly important role in addressing environmental challenges and achieving sustainable development.

For more information on the Eco Waste Oxidizer please contact:

Eco Burn Inc. o/a
Eco Waste Solutions
 14 - 5195 Harvester Road
 Burlington, Ontario
 L7L 6E9 Canada
 Tel: (905) 634-7022
 Toll Free: 1-866-326-2876
 www.ecosolutions.com
 info@ecosolutions.com

For more information on ISO 14034:2016 / ETV please contact:

GLOBE Performance Solutions
 World Trade Centre
 404 – 999 Canada Place
 Vancouver, BC
 V6C 3E2 Canada
 Tel: 604-695-5018
 Toll Free: 1-855-695-5018
 www.globepformance.com
 etv@globepformance.com

Limitation of verification

GLOBE Performance Solutions and the Verification Expert provide the verification services solely on the basis of the information supplied by the applicant or vendor and assume no liability thereafter. The responsibility for the information supplied remains solely with the applicant or vendor and the liability for the purchase, installation, and operation (whether consequential or otherwise) is not transferred to any other party as a result of the verification.