

Eco Waste Oxidizer

Eco Waste Solutions Inc.

Performance Claim

The Eco Waste Oxidizer, manufactured by Eco Waste Solutions Inc., 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 times 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
NO _x	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 NO_x 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 wastes. 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

The data set analysed for claim verification was generated for a compliance test performed on a 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. MOEE granted a Certificate of Approval for the system on December 11, 1996 for the Town of Durham. The verification of the performance claim based on this data was carried out by Water Technology International Corporation (WTI). The data was analysed using various statistical methods, including one-tailed and two-tailed hypothesis tests.

What is the ETV Program?

The Environmental Technology Verification (ETV) Program is a joint Environment Canada - Industry Canada initiative delivered by ETV Canada. The ETV Program is designed to support Canada's environment industry by providing credible and independent verification of technology performance claims.

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