

CANADIAN ETV PROGRAM VERIFIED

Bio Waste Oxidizer

Technology Fact Sheet for Eco Waste Solutions



Performance Claim

The Bio Waste Oxidizer, manufactured by Eco Burn Inc. (Eco Waste Solutions), is a three-stage thermal gasification system capable of meeting the average stack emission concentrations listed below, when used to incinerate biomedical waste and when the minimum temperature and minimum residence time in the afterburner are 1,000°C and 2 seconds, respectively.

| Parameter | Average Scrubber Emission Concentrations |
|-----------------------|--|
| Particulate* | 28.7 mg/Rm ³ |
| Pb+Mn+Cr+Cu+As+Ni | 0.5 mg/Rm ³ |
| Cd | 0.001 mg/Rm ³ |
| Hg | 0.003 mg/Rm ³ |
| Dioxin/Furan ** | 0.027 ng I-TEG/Rm ³ |
| SO ₂ | 37 mg/Rm ³ |
| NOx *** | 167 mg/Rm ³ |
| CO | 8 mg/Rm ³ |
| HCl | 16 mg/Rm ³ |
| HF | 1.1 mg/Rm ³ |
| Organic Compound **** | 9 mg/Rm ³ |

* Emissions exclude excess sodium hydroxide contribution

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

*** Nitrogen oxides are expressed as nitrogen dioxide

**** Expressed as methane

R indicates the reference measurement conditions for emissions, which are: at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Environmental Technology Verification

Technology Description

The Bio Waste Oxidizer is a batch-mode three-stage thermal oxidation system for incinerating biomedical 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 through a wet scrubber in the third stage. Critical process parameters in both stages are computer controlled. The complete oxidation cycle, which consists of loading, combustion, cooling and ash removal, occurs over twelve hours. The actual oxidation process occurs over a 6 to 8 hour period.

Technology Application

The Bio 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 biomedical wastes.

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 Canadian Ortech Environmental, in July 1999, with all protocols accepted by the Ontario Ministry of the Environment (MOE). The loadings to the incinerator on the three test days were approximately 1000 kg of biomedical waste per test. The waste composition was as defined by the Ontario Ministry of the Environment's proposed definition of biomedical waste. The verification of the performance claim based on this data was carried out by Chemical Emission Management Services (CEMS), Mississauga, Ontario.

What is the Canadian ETV Program?

The Canadian Environmental Technology Verification (ETV) Program is delivered by GLOBE Performance Solutions under a license agreement from Environment Canada. The Canadian ETV Program is designed to support Canada's environment industry by providing credible and independent verification of technology performance claims.

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