Matrix Environmental

BI-ANNUAL BIOFILTER MONITORING AT THE MILLTOWN COMPOST SITE, MILLTOWNMORE, FETHARD, CO. TIPPERARY. SEPTEMBER 2017 W0270-01

For the Attention of:

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Ref: Biofilter Monitoring Sept 2017

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Executive Summary

Milltown Compost facility commissioned Matrix Environmental to undertake inlet and outlet sampling and analysis of the biofilter at their facility at Milltownmore, County Tipperary as per the requirements of their waste licence. This included testing of the biofilter media for pH, Ammonia, Percent Moisture and Total Viable Counts (TVC's) and testing the inlet (two inlet pipes) and outlet gases from the production buildings for Ammonia, Hydrogen Sulphide, Amines and Mercaptans. An Environmental Consultant subsequently visited the site on the 5th of September 2017 to undertake the biofilter media sampling and the gas analysis.

The results of the biofilter media monitoring are outlined in section 4.0. The results of the emission monitoring are also given in section 4.0. The outlet emission levels were compared to typical emission limit values for comparable facilities. All results are within licence limits as stipulated in W0270-01.

This report is certified as accurate and representative of the sampling and associated analysis carried out.

1.0 INTRODUCTION

In compliance with the requirements of their waste licence (W0270-01) Milltown Compost are required to carry out monitoring of the inlet and outlet airstream of their biofilter and also the biofilter media itself.

Matrix Environmental was commissioned to undertake the sampling and reporting. An environmental consultant visited the site on the 5th of September 2017.

This report presents details of the sampling and analytical methodology carried out together with a broad interpretation of the results.

2.0 SCOPE OF MONITORING

The monitoring scope is outlined in Tables 2.1 and 2.2 below.

Table 2.1 Scope of Bed monitoring	
Parameters	**Location**
pH, Moisture, TVC's, Ammonia	A composite sample will be made from a number of locations on the biofilter bed

Table 2.2 Scope of inlet and outlet monitoring	
Parameters	**Location**
Ammonia, Mercaptans Hydrogen Sulphide, Amines	Biofilter inlet duct x 2
Ammonia, Mercaptans Hydrogen Sulphide, Amines	Biofilter surface

3.0 METHODOLOGY

3.1 Biofilter bed sampling

Table 3.1: Parameters and Limits of Detection

Parameter	Method of Analysis	Volume Required	Sample Container
Moisture Content	P274	100 g	Plastic/Glass
pH_W (soils)	P233	20g	Plastic/Glass
Ammonia	P236	100g	Plastic/Glass
TVC's @ 30°C	IML 11	250g	Sterile Container

3.2 Biofilter emission sampling

Levels of the required parameters were determined colorimetrically using the appropriate Draeger tube and pump. Each analysis was carried out by placing the tube into the pump and pulling a known volume through the tube. The appearance of a discoloration indicates the presence of the species of interest. The results are expressed in ppm. The results for Amines are described as positive or negative

Milltown Compost site personnel confirmed that the biofilter was operating as normal on the day of sampling.

4.0 RESULTS

Table 4.1 presents the results of the Biofilter Media analysis

Table 4.1 Monitoirng results from the Biofilter 1 media	
Parameter	**Result**
% Moisture	69.21
pH	6.8
Ammonia (mg/kg)	67.40
Total Viable Counts @ 30ºC (Solid) cfu/g	1.7×10^6

A composite sample of the biofilter media was taken from the surface of the biofilter. At four locations on the biofilter surface small pits where dug to a depth of 40 to 50cm. From these pits a sample was taken. All four samples were combined into a single sample on-site.

Table 4.2 presents the results of the inlet emission monitoring from Inlet 1 and 2.

Table 4.2 Inlet emission levels of required parameters (Inlet 1 and 2)		
Parameter	**Inlet 1 Concentration (ppm)**	**Inlet 2 Concentration (ppm)**
Hydrogen Sulphide	<0.2	<0.2
Ammonia	15	15
Mercaptans	0.5	<0.5
Amines	Negative	Negative

Table 4.3 presents the results of the emission monitoring from Biofilter Outlet

Table 4.3 Outlet emission levels of required parameters	
Parameter	**Inlet Concentration (ppm)**
Hydrogen Sulphide	<0.2
Ammonia	<5
Mercaptan	<0.5
Amines	Negative

Monitoring was carried out at a fixed location on the inlet ducting and over a number of points on the surface of the biofilter (outlet).

5.0 COMMENT

The limits associated with the sites waste licence are as follows:

- Ammonia – 50ppm
- Mercaptan – 5ppm
- Hydrogen Sulphide – 5ppm

The biofilter emission levels at the Milltown compost facility are within these limit values.

The results obtained reflect the conditions on the day of sampling and current site operations on that day.