

Report of...

Compliance Emission Testing

Performed for ...

Eagle Alloy, Inc.
Muskegon, Michigan

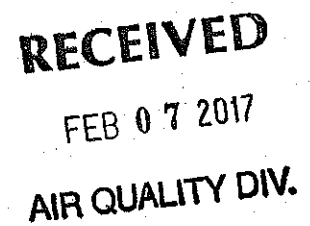
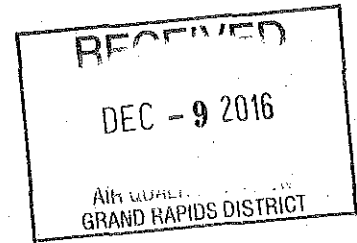
On the...

Sand Coating Thermal Oxidizer

November 22, 2016

284.03

Network Environmental, Inc.
Grand Rapids, MI



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AIR QUALITY DIV.

I. INTRODUCTION

Network Environmental, Inc. was retained by Eagle Alloy, Inc. to perform compliance emission sampling on the exhaust of the Sand Coating Thermal Oxidizer at their Muskegon, Michigan facility. The purpose of the study was to meet the testing requirements of Michigan Department of Environmental Quality (MDEQ) – Air Quality Division Permit to Install No. 95-01F. MDEQ Air Permit No. 95-01F has established the following emission limit for this source:

Source	Pollutant	Emission Limit
Sand Coating Thermal Oxidizer	VOCs	4.6 PPH

The following reference test methods were employed to conduct the sampling:

- VOCs – U.S.EPA Method 25A
- Exhaust Gas Parameters – U.S. EPA Methods 1 through 4

The sampling was performed on November 22, 2016. The sampling was performed by Stephan K. Byrd and Richard D. Eerdmans of Network Environmental, Inc. Assisting with the study was Mr. Steven Spiwak of Eagle Alloy, Inc. Mr. Eric Grinstern and Mr. Jeremy Howe of the Michigan Department of Environmental Quality (MDEQ) – Air Quality Division were present to observe the sampling and source operation.

II. PRESENTATION OF RESULTS

**II.1 TABLE 1
VOC EMISSION RESULTS SUMMARY
SAND COATER THERMAL OXIDIZER EXHAUST
EAGLE ALLOY, INC.
MUSKEGON, MICHIGAN**

Sample	Date	Time	Air Flow Rate SCFM ⁽¹⁾	Concentration	Emission Rate
				ppm ⁽²⁾	Lbs/Hr ⁽³⁾
1	11/22/16	09:03-10:03	4,318	1.8	0.053
2	11/22/16	10:10-11:10	4,313	3.0	0.088
3	11/22/16	11:17-12:17	4,320	2.1	0.062
Average			4,317	2.3	0.068

(1) SCFM = Standard Cubic Feet Per Minute (STP = 68.°F & 29.92 in. Hg)

(2) PPM = Parts per million on a Wet basis

(3) Lbs/Hr = Pounds of VOC Per Hour

III. DISCUSSION OF RESULTS

The results of the emission sampling are summarized in Table 1 (Section II.1). The results are presented as follows:

III.1 Sand Coating Thermal Oxidizer VOC Emission Results (Table 1)

Table 1 summarizes the Sand Coating Thermal Oxidizer emission results as follows:

- Sample
- Date
- Time
- Air Flow Rate (SCFM) – Standard Cubic Feet Per Minute (STP = 68 °F & 29.92 in. Hg)
- Concentration (PPM, Wet) – Parts Per Million on a Wet Basis
- Mass Emission Rate (Lbs/Hr) – Pounds of VOC Per Hour

IV. SAMPLING AND ANALYTICAL PROTOCOL

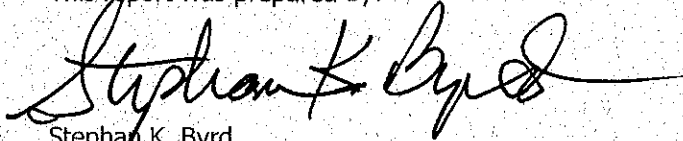
IV.1 VOCs - The VOC sampling was conducted in accordance with U.S. EPA Reference Method 25A. A J.U.M. 3-500 with Flame Ionization Detector gas analyzer was used to monitor the Thermal Oxidizer exhaust. A heated Teflon sample line was used to transport the exhaust gases to the analyzer. The analyzer produces instantaneous readouts of the VOCs concentrations (PPM). The analyzer was operated on the 0-100 ppm scale.

The analyzer was calibrated by direct injection prior to the testing. A span gas of 96.49 PPM was used to establish the initial instrument calibration. Calibration gases of 50.19 PPM and 29.17 PPM were used to determine the calibration error of the analyzer. After each sample, a system zero and system injection of 29.17 PPM were performed to establish system drift during the test period. All calibration gases were EPA Protocol 1 Certified.

The analyzer was calibrated to the output of the data acquisition system (DAS) used to collect the data from the exhaust. A diagram of the sampling train is shown in Figure 1. Three (3) samples, each sixty (60) minutes in duration, were collected from the exhaust.

IV.2 Exhaust Gas Parameters – The exhaust gas parameters (air flow rate, temperature, moisture and density) were determined in conjunction with the other sampling by employing U.S. EPA Methods 1 through 4. Oxygen and carbon dioxide content were determined by orsat analysis. Moisture was determined by a moisture train. All the quality assurance and quality control procedures listed in the methods were incorporated in the sampling and analysis.

This report was prepared by:



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This report was reviewed by:



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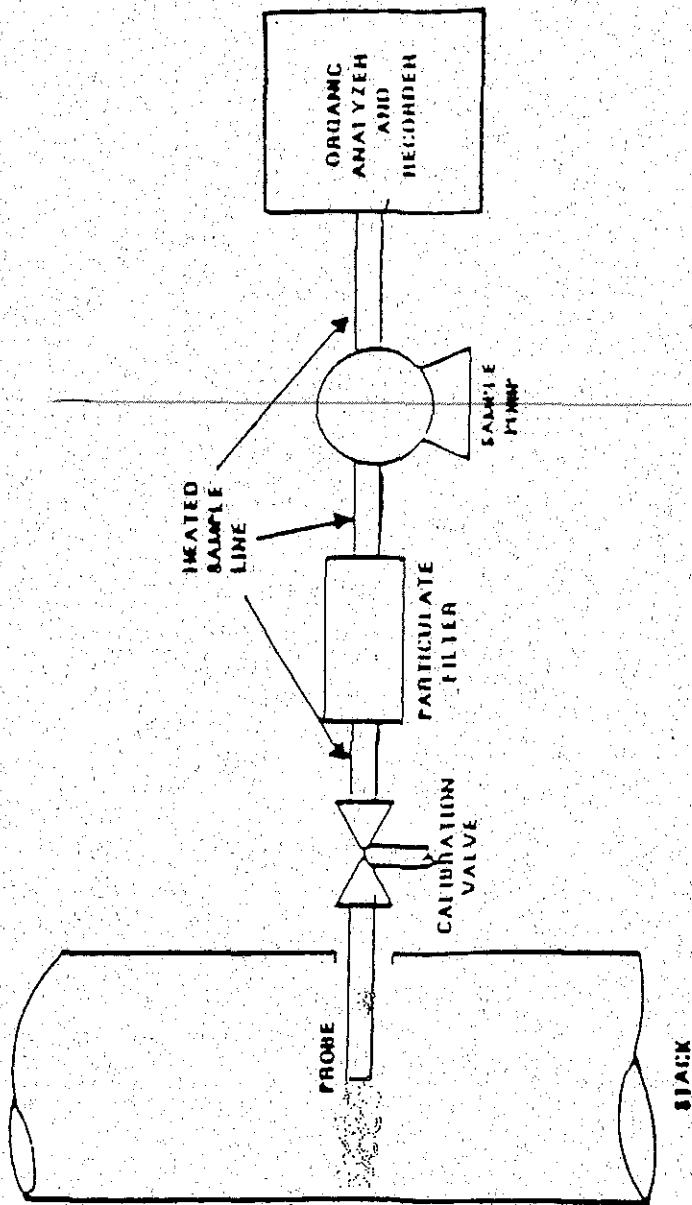


Figure 1

Method 25A Sampling Train