



HCl Emissions Test Report

RECEIVED

JUN 09 2014

AIR QUALITY DIV.

Prepared for:

Dedoes Industries, Inc.

Dedoes Industries, Inc.
1060 W. West Maple Road
Walled Lake, MI 48390

Project No. 14-4514.00
June 2, 2014

BT Environmental Consulting, Inc.
4949 Fernlee Avenue
Royal Oak, Michigan 48073
(248) 548-8070

EXECUTIVE SUMMARY

BT Environmental Consulting, Inc. (BTEC) was retained by Dedoes Industries, Inc. (Dedoes) to conduct a compliance emissions test program on a single source at the Dedoes facility in Walled Lake, Michigan. This emissions testing program included evaluation of hydrogen chloride (HCl) from EU-BURNOFF. The emissions test program was conducted on April 28, 2014.

Testing of the EU-BURNOFF consisted of triplicate 60-minute test runs. The emissions test program was required by MDEQ Air Quality Division Permit To Install 121-13. The results of the emission test program are summarized by Table I.

Table I
EU-BURNOFF Overall Emission Summary
Test Date: April 28, 2014

EU-BURNOFF			
Run Number	Pollutant	Emission Rate (lb/hr)	Emission Limit (lb/hr)
Run 1	HCl	0.0007	26.7
Run 2	HCl	0.0090	26.7
Run 3	HCl	0.0004	26.7
Three Run Average	HCl	0.0034	26.7

RECEIVED
JUN 09 2014
AIR QUALITY DIV.



1. Introduction

BT Environmental Consulting, Inc. (BTEC) was retained Dedoes Industries, Inc. (Dedoes) to conduct a compliance emissions test program on a single source at the Dedoes facility in Walled Lake, Michigan. The emissions test program was conducted on April 28, 2014. The purpose of this report is to document the results of the test program.

AQD has published a guidance document entitled "Format for Submittal of Source Emission Test Plans and Reports" (February 2013). The following is a summary of the emissions test program and results in the format suggested by the aforementioned document.

1.a Identification, Location, and Dates of Test

Sampling and analysis for the emission test program was conducted on April 28, 2014 at the Dedoes facility located in Walled Lake, Michigan. The test program included evaluation of hydrogen chloride (HCl) of the EU-BURNOFF.

1.b Purpose of Testing

The purpose of testing is to quantify HCl emissions from EU-BURNOFF.

1.c Source Description

A batch type natural gas-fired burn-off oven, Model 6709, for use in removing hydrocarbon materials from metal parts. The oven is equipped with a primary chamber of 790,000 BTU/hr and with a 1,000,000 BTU/hr afterburner control system.

1.d Test Program Contacts

The contact for the source and test report is:

Mr. Ed Moreno
Facilities Manager
Dedoes Industries, Inc.
1060 W. West Maple Road
Walled Lake, Michigan 48390
248-624-7710 x238

Names and affiliations for personnel who were present during the testing program are summarized by Table 2.

**Table 2
Test Personnel**

Name and Title	Affiliation	Telephone
Ken Lievens Project Manager	BTEC 4949 Fernlee Avenue Royal Oak, MI 48073	(248) 548-8070
Paul Molenda Environmental Technician	BTEC 4949 Fernlee Avenue Royal Oak, MI 48073	(248) 548-8070
Mr. Ed Moreno Facilities Manager	Dedoes Industries, Inc. 1060 W. West Maple Road Walled Lake, MI 48390	(248) 624-7710 X238
Thomas Maza Environmental Quality Analyst	MDEQ 27700 Donald Court Warren, MI 48092-2793	(313) 456-4709

2. Summary of Results

Sections 2.a through 2.d summarize the results of the emissions compliance test program.

2.a Operating Data

Process data monitored during the emissions test program included after burner temperature.

2.b Applicable Permit

Permit To Install 121-13.

2.c Results

The overall results of the emission test program are summarized by Table 3 (see Section 5.a). HCl emissions from the EU-BURNOFF were below the corresponding limit of 26.7 lb/hr.

3. Source Description

Sections 3.a through 3.e provide a detailed description of the process.

3.a Process Description

A batch type natural gas-fired burn-off oven, Model 6709, for use in removing hydrocarbon materials from metal parts. The oven is equipped with a primary chamber of 790,000 BTU/hr and with a 1,000,000 BTU/hr afterburner control system.

3.b Process Flow Diagram

Due to the simplicity of the burn-off oven, a process flow diagram is not necessary.

3.c Raw and Finished Materials

The raw material used by the process is natural gas.

3.d Process Capacity

The oven is equipped with a primary chamber of 790,000 BTU/hr and with a 1,000,000 BTU/hr afterburner control system.

3.e Process Instrumentation

Process data monitored during the emissions test program included after burner temperature.

4. Sampling and Analytical Procedures

Sections 4.a through 4.d provide a summary of the sampling and analytical procedures used.

4.a Sampling Train and Field Procedures

The Method 26 sampling train consists of: (1) a heated borosilicate or quartz probe liner; (2) a heated borosilicate or quartz glass filter holder containing a pre-weighed 90-mm diameter filter with Teflon filter support; (3) a set of three Greensburg-Smith (GS) impingers each containing 100 ml of 0.1 Normal Sulfuric Acid (0.1 N H₂SO₄), (4) a modified GS impinger containing a known weight of silica gel desiccant; (5) a length of sample line, and (6) a Nutech control case equipped with a pump, dry gas meter, and calibrated orifice. Figure 1 provides an illustration of the Method 26A sample train.

The emissions test program will utilize the following test methods codified at Title 40, Part 60, Appendix A of the Code of Federal Regulations (40 CFR 60, Appendix A):

- Method 1 - "Sample and Velocity Traverses for Stationary Sources"
- Method 2 - "Determination of Stack Gas Velocity and Volumetric Flowrate"

- Method 3A - “Determination of Molecular Weight of Dry Stack Gas”(Fyrite)
- Method 4 - “Determination of Moisture Content in Stack Gases”
- Method 26 - “Determination of Hydrogen Halide and Halogen Emissions from Stationary Sources

After completion of the final leak test for each test run, the impinger train was carefully disassembled. The filter was recovered and placed in its original Petri dish. The liquid volume of each impinger was measured gravimetrically and any mass increase was noted on field sheets. The impinger catch solution was then transferred to pre-cleaned sample containers. The impingers were then triple rinsed with deionized water (DI H₂O), and the rinses added to the H₂SO₄ sample containers. The back-half of the filter holder was rinsed and added to the H₂SO₄ sample container.

BTEC labeled each container with the test number, test location, and test date, and marked the level of liquid on the outside of the container. In addition, blank samples of the DI water and H₂SO₄ and filter were collected. DI water and H₂SO₄ samples were couriered by Maxxam personnel to Maxxam’s laboratory in Mississauga, Ontario for analysis.

4.b Recovery and Analytical Procedures

Recovery and analytical procedures were described in Section 4.a.

4.c Sampling Ports

A diagram of the stack showing sampling ports in relation to upstream and downstream disturbances is included as Figure 2.

4.d Traverse Points

A diagram of the stack indicating traverse point locations and stack dimensions is included as Figure 2.

5. Test Results and Discussion

Sections 5.a through 5.k provide a summary of the test results.

5.a Results Tabulation

The overall results of the emissions test program are summarized by Table 3. Detailed results for the emissions test program are summarized by Table 4.

Table 3
EU-BURNOFF Overall Emission Summary
Test Date: April 28, 2014

EU-BURNOFF			
Run Number	Pollutant	Emission Rate (lb/hr)	Emission Limit (lb/hr)
Run 1	HCl	0.0007	26.7
Run 2	HCl	0.0090	26.7
Run 3	HCl	0.0004	26.7
Three Run Average	HCl	0.0034	26.7

5.b Discussion of Results

HCl emissions from EU-NURNOFF were less than the corresponding emission limit of 26.7 lb/hr.

5.c Sampling Procedure Variations

There were no sampling variations used during the emission compliance test program.

5.d Process or Control Device Upsets

No upset conditions occurred during testing.

5.e Control Device Maintenance

There was no control equipment maintenance performed during the three month period prior to testing.

5.f Re-Test

The emissions test program was not a re-test.

5.g Audit Sample Analyses

No audit samples were collected as part of the test program.

5.h Calibration Sheets

Relevant equipment calibration documents are provided in Appendix B.

5.i Sample Calculations

Sample calculations are provided in Appendix C.



5.j Field Data Sheets

Field documents relevant to the emissions test program are presented in Appendix A.

5.k Laboratory Data

Laboratory analytical results for this test program are presented in Appendix D

Table 3
EU Burnoff HCl Emission Rates

Company Source Designation Test Date	Dedoes EU Burnoff			Average
	4/28/2014	4/28/2014	4/28/2014	
Meter/Nozzle Information	P-1	P-2	P-3	
Meter Temperature Tm (F)	68.2	75.1	78.3	73.9
Meter Pressure - Pm (in. Hg)	29.3	29.3	29.3	29.3
Measured Sample Volume (Vm)	44.5	44.7	44.7	44.6
Sample Volume (Vm-Std ft3)	43.7	43.4	43.1	43.4
Sample Volume (Vm-Std m3)	1.24	1.23	1.22	1.23
Condensate Volume (Vw-std)	5.611	4.291	3.112	4.338
Gas Density (Ps(std) lbs/ft3) (wet)	0.0723	0.0730	0.0736	0.0729
Gas Density (Ps(std) lbs/ft3) (dry)	0.0756	0.0756	0.0756	0.0756
Total weight of sampled gas (m g lbs) (wet)	3.56	3.48	3.40	3.48
Total weight of sampled gas (m g lbs) (dry)	3.30	3.28	3.26	3.28
Stack Data				
Average Stack Temperature - Ts (F)	1438.3	1417.9	1444.6	1433.6
Molecular Weight Stack Gas- dry (Md)	29.2	29.2	29.2	29.2
Molecular Weight Stack Gas-wet (Ms)	28.0	28.2	28.5	28.2
Stack Gas Specific Gravity (Gs)	0.966	0.975	0.984	0.975
Percent Moisture (Bws)	11.38	9.00	6.73	9.04
Water Vapor Volume (fraction)	0.1138	0.0900	0.0673	0.0904
Pressure - Ps ("Hg)	29.1	29.1	29.1	29.1
Average Stack Velocity -Vs (ft/sec)	19.2	21.4	20.1	20.3
Area of Stack (ft2)	1.4	1.4	1.4	1.4
Exhaust Gas Flowrate				
Flowrate ft ³ (Actual)	1,610	1,795	1,685	1,697
Flowrate ft ³ (Standard Wet)	436	492	455	461
Flowrate ft ³ (Standard Dry)	387	448	424	419
Flowrate m ³ (standard dry)	11	13	12	12
Total HCl Weight (ug)				
Sample Catch	610	6600	330	2513
Total HCl Concentration				
lb/1000 lb (wet)	0.000	0.004	0.000	0.002
lb/1000 lb (dry)	0.000	0.004	0.000	0.002
mg/dscm (dry)	0.5	5.4	0.3	2.0
Total HCl Emission Rate				
lb/ hr	0.0007	0.0090	0.0004	0.0034

Figures

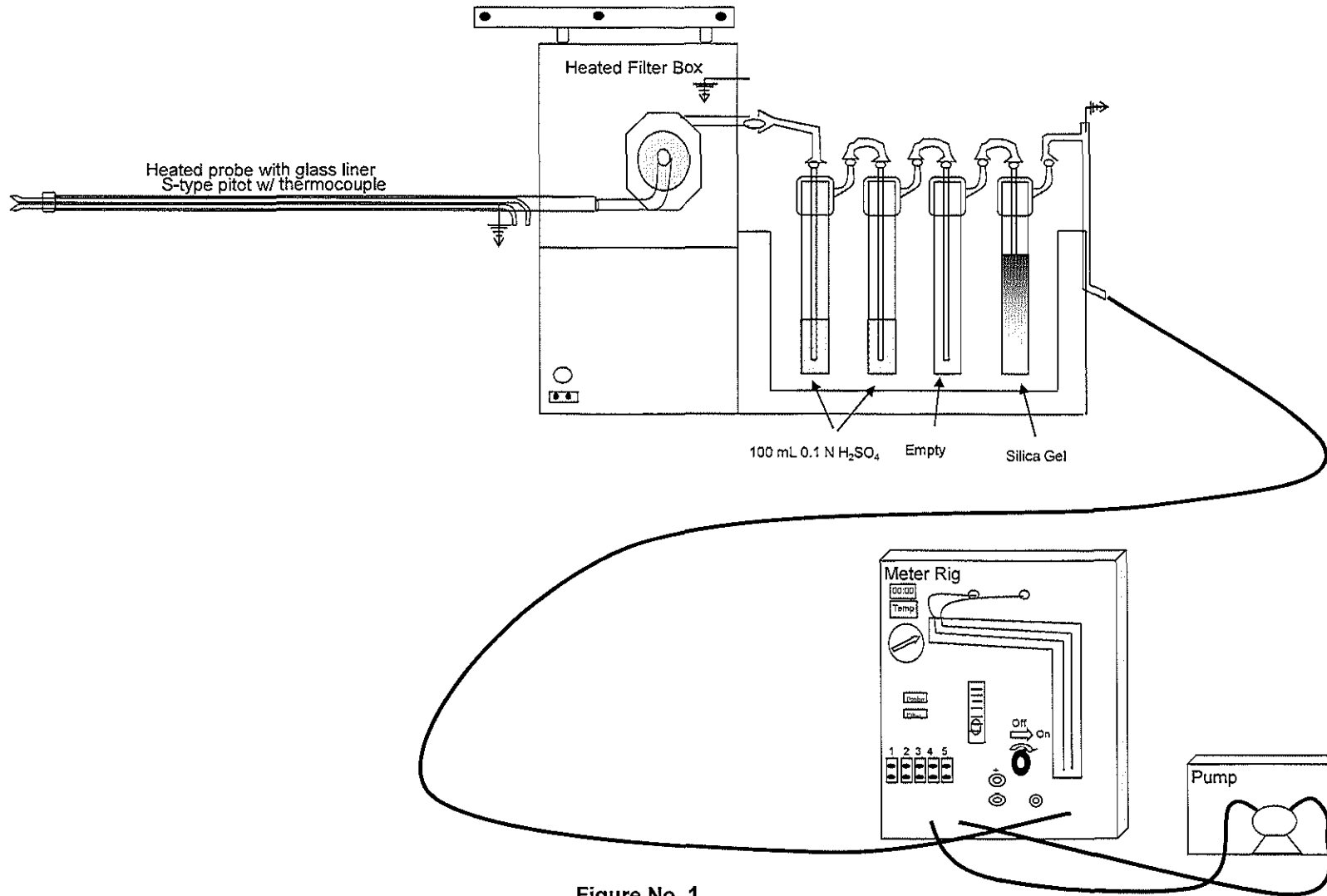


Figure No. 1

Site:
USEPA Method 26A
Dedoes Industries, Inc.
Walled Lake, Michigan

Sampling Date:
April 28, 2014

BT Environmental Consulting, Inc.
4949 Fernlee Avenue
Royal Oak, Michigan 48073

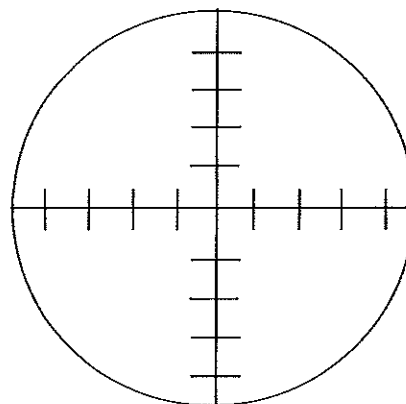
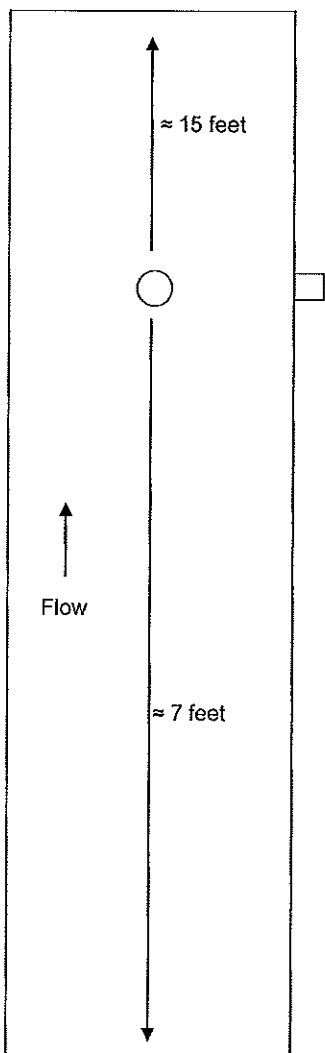
RECEIVED

JUN 09 2014

AIR QUALITY DIV.



diameter = 16 inches



Not to Scale

Points	Distance "
1	0.5
2	1.7
3	3.1
4	5.2
5	10.8
6	12.9
7	14.3
8	15.5

Figure No. 2

Site: EU-BURNOFF Exhaust Stack
Dedoes Industries, Inc.
Walled Lake, Michigan

Sampling Date: April 28, 2014

BT Environmental Consulting, Inc.
4949 Fernlee Avenue
Royal Oak, Michigan 48073