

# PIPEDREAM TEST REPORT

**SCOPE OF WORK**

ASTM D3960 (November 2013) on Heavy Duty Undercoating

**REPORT NUMBER**

104899640GRR-001

**ISSUE DATE**

28-March-2022

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## TEST REPORT FOR PIPEDREAM INDUSTRIES, INC

Report No.: 104899640GRR-001

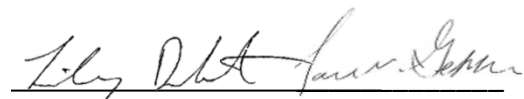
Date: 28-March-2022

P.O.: N/A

### SECTION 1

#### CLIENT INFORMATION

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**SECTION 2**

**SUMMARY AND CONCLUSION**

Date Received: 06-December-2021  
Dates Tested: 03-January-2022 to 15-February-2022

**DESCRIPTION OF SAMPLES**

Part Name: Heavy Duty Undercoating  
Part Number: Not Specified  
Product Category: Coating  
Material Submitted: Six (6) cans of coating  
Shipping Condition: Good Condition

**WORK REQUESTED/APPLICABLE DOCUMENTS**

VOC Content: ASTM D3960 (November 2013)  
Intertek Quote: Qu-01222746

**TEST RESULTS**

TEST	DISPOSITION
ASTM D3960 (NOVEMBER 2013)	RESULTS REPORTED

**SAMPLE DISPOSITION**

At the completion of testing, samples were disposed of in a routine manner.

### SECTION 3

#### VOC CONTENT CALCULATION

Date Received: 06-December-2021  
Dates Tested: 03-January-2022 to 15-February-2022

#### DESCRIPTION OF SAMPLES:

Part Name: Heavy Duty Undercoating  
Part Number: Not Specified  
Product Category: Coating  
Material Submitted: Six (6) cans of coating  
Shipping Condition: Good Condition

#### TEST PROCEDURE:

Test Method: ASTM D3960-05 (Nov. 2013) - Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings  
ASTM D2369 (June 2015) – Standard Test Method for Volatile Content of Coatings  
ASTM D1475 (Nov. 2013) – Standard Test Method for Density of Liquid Coatings, Inks, and Related Products  
ASTM D2697 (Jul. 2014) - Volume Nonvolatile Matter in Clear or Pigmented Coatings  
ASTM D6133 (Jul. 2014) - Acetone, p-Chlorobenzotrifluoride, Methyl Acetate or t-Butyl Acetate Content of Solventborne and Waterborne Paints, Coatings, Resins, and Raw Materials by Direct Injection Into a Gas Chromatograph  
ASTM D3792 (Jun. 2009) - Water Content of Coatings by Direct Injection Into a Gas Chromatograph

Number of Samples: One (1) Per Material

#### ACCEPTANCE CRITERIA:

Referencing: Not Specified

#### TEST NOTES OR DEVIATIONS:

Testing performed without deviation unless noted below.

**RESULTS:**

VOC content in g/L of coating less water and exempt volatile compound is expressed in Eq. 1:

$$VOC = \frac{(W_v - W_w - W_{ex})(D_c)}{100\% - (W_w)(\frac{D_c}{D_w})}$$

where:

- $VOC$  = VOC content in g/L of coating solids
- $W_v$  = weight of total volatiles, %
- $W_w$  = weight of water, %
- $W_{ex}$  = weight of exempt volatile compound, %
- $D_c$  = density of coating, g/L, at 25°C
- $D_w$  = density of water, g/L, at 25°C

VOC content in grams of VOC per liter of coating solids is expressed in Eq. 2:

$$VOC_m = \frac{(W_o)(D_c)}{V_n}$$

where:

- $VOC_m$  = VOC content in grams of VOC per liter of coating solid
- $W_o$  =  $W_v - W_w - W_{ex}$  (terms defined as in Eq. 1)
- $V_m$  = weight of water, %
- $V_n$  = volume of nonvolatile content of the liquid coating, %

VOC content in grams per gram of coating solids expressed in Eq. 3:

$$VOC_b = \frac{(W_o)}{W_s}$$

where:

- $VOC_b$  = VOC content in g/g of coating solids
- $W_o$  =  $W_v - W_w - W_{ex}$  (terms defined as in Eq. 1)
- $W_s$  = weight of solids, %.

**Table 1: VOC Content Results**

TEST VARIABLE	TEST SPEC	VARIABLE	RESULT	UNITS
Density	ASTM D1475	D	1566	g/L
Water Content	ASTM D3792	$W_w$	18.29	%
Exempt VOCs	ASTM D6133	$W_{ex}$	< 1	%
Volume of nonvolatile compounds	ASTM D2697	$V_n$	0.58	%
Total Volatiles	ASTM D2369	$W_v$	32.55	%

**Table 2: VOC Content Disposition**

PARAMETER	UNITS	MEASURED VALUE	ACCEPTANCE CRITERIA	DISPOSITION
VOC Content	Grams per liter of coating less water and exempt volatile compound	313	-	Results Reported
VOC Content	Grams of VOC per liter of coating solids	385	-	Results Reported
VOC Content	Grams per gram of coating solids	0.25	-	Results Reported