

PIPEDREAM TEST REPORT

SCOPE OF WORK

EPA Method 24 (Oct. 2020) on Heavy Duty Undercoating

REPORT NUMBER

104899640GRR-002

ISSUE DATE

28-March-2022

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TEST REPORT FOR PIPEDREAM INDUSTRIES, INC

Report No.: 104899640GRR-002

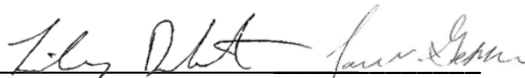
Date: 28-March-2022

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: EPA Method 24 (Oct. 2020)
LEED V4.1 BD+C (APR. 2020); SCAQMD Rule 1113 (Feb. 2016)
Intertek Quote: Qu-01222746

TEST RESULTS

TEST	DISPOSITION
EPA METHOD 24 (OCT. 2020)	RESULTS REPORTED
LEED V4.1 BD+C (APR. 2020)	NON-CONFORMING

SAMPLE DISPOSITION

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

SECTION 3
VOC CONTENT

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: EPA Method 24 (Oct. 2020) - Determination Of Volatile Matter Content, Water Content, Density, Volume Solids, And Weight Solids Of Surface 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 D3792 (Jun. 2009) – Water Content of Coatings by Direct Injection Into a Gas Chromatograph
 ASTM D4457 (Feb. 2014)- Determination of Dichloromethane and 1,1,1-Trichloroethane in Paints and Coatings by Direct injection into a Gas Chromatograph.
 ASTM D6886 (Oct. 2018)-Determination of the Weight Percent Individual Volatile Organic Compounds.
 SCAQMD Rule 1113 (Feb. 2016) Architectural Coatings
 Number of Samples: One (1) Per Material

ACCEPTANCE CRITERIA:

Referencing: SCAQMD Rule 1113 (Feb. 2016)

COATING CATEGORY	CURRENT LIMIT (Grams of VOC per liter of Regulated Product, less water and less exempt compounds)	EFFECTIVE DATE
51 - Default	50	1/1/2014

TEST NOTES OR DEVIATIONS:

Testing performed without deviation unless noted below.

RESULTS:

Equation 1: VOC content per EPA 24

$$VOC, \frac{g}{L} (of\ coating) = (100 - N - W - Ex)(Dm)(10)$$

Where:	N = Weight percent nonvolatiles W = Weight percent water Ex = Weight percent exempt compounds Dm = Density of the sample, g/mL
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Table 1: VOC Content Results per EPA 24

TEST VARIABLE	TEST SPEC	VARIABLE	RESULT	UNITS
Density	ASTM D1475	D _m	1.566	g/mL
Water	ASTM D3792	W	18.29	%
Non-volatile compounds	ASTM D2369	N	67.45	%
Exempt VOCs	ASTM D6886	Ex	< 0.1	%
Exempt VOCs	ASTM D4457	Ex	< 1	%
VOC Content	-	-	223	g/L

Table 2: VOC Content Results per ASTM D6886 – nonexempt compounds

Retention Time (min)	Substance	CAS	%Weight
2.661	Unknown	-	0.203
2.892	Unknown	-	1.373
5.730	Unknown	-	0.585
21.349	Unknown	-	0.683
21.631	Unknown	-	1.039
22.332	Unknown	-	1.028
22.845	Dimantine	124-28-7	0.447
23.144	Unknown	-	1.055
23.991	Unknown	-	0.983

Table 3: VOC Content Results per ASTM D6886 – exempt compounds

Retention Time (min)	Substance	CAS	%Weight
	*		
Total of exempt compounds:			-

*No exempt compounds detected.

Equation 2: VOC content per LEED V4; SCAQMD Rule 1113

$$VOC, \frac{g}{L} \left(\begin{array}{l} \text{of Regulated Product,} \\ \text{Less Water and Less} \\ \text{Exempt Compounds} \end{array} \right) = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

Where:	<p>W_s = Weight of volatile compounds, in grams</p> <p>W_w = Weight of water, in grams</p> <p>W_{es} = Weight of exempt compounds, in grams</p> <p>V_m = Volume of materials, in liters</p> <p>V_w = Volume of water, in liters</p> <p>V_{es} = Volume of exempt compounds, in liters</p>
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Table 4: VOC Content Results per SCAQMD Rule 1168

TEST VARIABLE	TEST SPEC	RESULT	UNITS
Density	ASTM D1475	1566	g/L
Water	ASTM D4457	< 0.1	%
Non-volatile compounds	ASTM D2369	67.45	%
Exempt VOCs	ASTM D6886	< 0.1	%
Exempt VOCs	ASTM D4457	< 1	%

Table 5: Calculation of Grams of VOC per liter of Regulated Product, Less water and less exempt compounds

TEST VARIABLE		RESULT	UNITS	FINAL RESULT
Weight of volatile compounds	W _s	510	g	313
Weight of water	W _w	287	g	
Weight of exempt compounds	W _{es}	< 1.6	g	
Volume of material	V _m	1	L	
Volume of Water	V _w	0.287	L	
Volume of exempt compounds	V _{es}	< 0.002	L	