



April 6, 2015

Via Email: [chris@intcoatings.com](mailto:chris@intcoatings.com)

Mr. Chris Collins  
CEO  
International Coatings Group, Inc.  
757 SE 17<sup>th</sup> Street  
Fort Lauderdale, FL 33316-2960

**SUBJECT: Results of Volatile Organic Compound (VOC) Content Testing;  
KTA-Tator, Inc. Project No. 350149-A1**

Dear Mr. Collins:

In accordance with your e-mail request and subsequent email authorization on March 30, 2015, KTA-Tator, Inc. (KTA) has completed density and weight solids testing in order to calculate the volatile organic compound (VOC) content for the submitted coating material. The results of water content determination used for this calculation were previously provided in the report issued February 26, 2015. This report contains descriptions of the testing procedure employed and the results of the testing.

**SAMPLE**

Approximately one pint of liquid coating material labeled, "FBL-100 (1-26-15); Lot 101" was received from International Coatings Group, Inc. (ICG) on February 19, 2015. This sample was designated by KTA as Sample 350149-1. It should be noted that at no time did KTA personnel witness the acquisition or manufacturing of the sample.

**VOLATILE ORGANIC COMPOUND (VOC) CONTENT**

The VOC content was determined in accordance with ASTM D3960-05(13), "Standard Test Method for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings," which specifies the following equations for coatings containing water and exempt solvents:

$$\begin{aligned} \text{VOC} &= \frac{(W_o)(D_c)}{100\% - V_w - V_{ex}} \\ &= \frac{(W_v - W_w - W_{ex})(D_c)}{100\% - [(W_w)(D_c/D_w)] - [(W_{ex})(D_c/D_{ex})]} \end{aligned}$$

**KTA-Tator, Inc.**

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Where:

- $W_o$ =weight of organic volatiles, %
- $W_v$ =weight of total volatiles, %, (100% - weight % solids)
- $W_w$ =weight of water, %
- $W_{ex}$ =weight of exempt volatile compound, %
- $V_w$ =volume of water, %, ( $W_w$ ) ( $D_c/D_w$ )
- $V_{ex}$ =volume of exempt volatile content, %, ( $W_{ex}$ ) ( $D_c/D_{ex}$ )
- $D_c$ =density of the coating, g/L
- $D_w$ =density of water, g/L
- $D_{ex}$ =density of exempt volatile compound, g/L

The determination of weight solids (ASTM D2369-10e1), % weight of water [ASTM D4017-02(08)e1], and density (ASTM D1475-13) are described below. The results used for calculation and the total VOC content (g/L) are provided in Table 1, “Volatile Organic Compound (VOC) Content Results.”

**Table 1 – Volatile Organic Compound (VOC) Content Results**

350149-1 (Sample Number: 081914)			
Determination	Method	Results	
Density	ASTM D1475-13	12.043 lb/gal	1443 g/L
Weight Solids	ASTM D2369-10e1	72.70%	
Percent Water Content	ASTM D4017-02(08)e1	26.50%	
Calculated VOC Content	ASTM D3960-05(13)	0.16 lb/gal	19 g/L

**Density**

Density was determined in accordance with ASTM D1475-13, “Standard Test Method for Density of Liquid Coatings, Inks, and Related Products” at 25°C. A calibrated cup was weighed empty and then weighed full of liquid coating. The air bubbles were eliminated from the coatings as much as feasible by gently tapping the cup. Calculations utilizing the weight of the coating material and a constant for the calibrated cup were performed to determine the density. The reported result is the average of four individual results. The results of the testing are provided in Table 2, “Density Results.”

**Table 2 – Density Results**

Density (lb/gal)	Temperature of Material (°C)	Average Density (lb/gal)
12.0443	25	12.043
12.0374	25	
12.0406	25	
12.0497	25	

## **Weight Solids**

The weight solids content was determined in accordance with ASTM D2369-10e1, "Standard Test Method for Volatile Content of Coatings," Method A. Briefly, this method involved placing approximately 0.5 g of paint into an aluminum dish, dispersing it in approximately 3 mL of deionized water, heating it to remove the volatile compounds, and then reweighing the sample. The percent weight solids content was calculated by dividing the remaining sample weight by the initial sample weight and multiplying by 100. The reported result is the average of four individual results and can be found in Table 1, "Volatile Organic Compound (VOC) Content Results."

## **Water Content by Karl Fischer Titration**

The percent water content was determined in accordance with ASTM D4017-02(08)e1, "Standard Test Method for Water in Paints and Paint Materials by Karl Fischer Method." For this testing, the Karl Fischer Titrator was standardized with deionized water prepared via reverse osmosis prior to the sample analysis. The reported result is the average of four individual results and can be found in Table 1, "Volatile Organic Compound (VOC) Content Results."

If you have any questions concerning the testing or this report, please contact me by telephone at 412.788.1300 extension 230, or by email at [mswogger@kta.com](mailto:mswogger@kta.com).

Sincerely,

**KTA-TATOR, INC.**



Melissa A Swogger  
*Analytical Technician*

MAS/VDS:jsc  
JN350149-A1  
CIN: 308084

**A1** – An addendum was issued to include the results of density and weight solids testing, and to perform volatile organic compound (VOC) content calculations.

*(350149-A1 ICG.doc)*

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**NOTICE:** This report represents the opinion of KTA-TATOR, INC. This report is issued in conformance with generally accepted industry practices. While customary precautions were taken to verify the information gathered and presented is accurate, complete and technically correct, this report is based on the information, data, time, materials, and/or samples afforded. This report should not be reproduced except in full.