



**UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY**
REGION 5
25063 CENTER RIDGE ROAD
WESTLAKE, OHIO 44145-4114

DATE: October 9, 2019

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Electro Prime Rossford, Inc., Rossford, Ohio

FROM: Mark Conti, Environmental Engineer
WECAB, Multimedia Section (ECW-W)

THRU: Brooke Furio, Section Chief
WECAB, Multimedia Section (ECW-W)

TO: Brian Dickens, Section Chief
AECAB, MN/OH Section (ECA-18J)

Patrick Miller, Environmental Engineer
AECAB, MN/OH Section (ECA-18J)

BASIC INFORMATION

Facility Name: Electro Prime Rossford, Inc.

Facility Location: 63 Dixie Highway, Rossford, OH 43460

Date of Inspection: September 20, 2019

EPA Inspector: Mark Conti, Team Leader/Environmental Engineer

Other Attendees:

1. Nastor Cardona, Lab Manager
2. Bruce Church, Maintenance Manager

Contact Email Address: Kevin.Meade@electroprime.com

Purpose of Inspection: Evaluate visible emissions.

Facility Type: Electrocoating and powder coating of motor vehicle parts and accessories.

Regulations Central to Inspection: Ohio state implementation plan, Clean Air Act, and Ohio EPA permit number P0115725.

Arrival Time: 9:25 AM

Departure Time: 11:45 AM

Inspection Type:

- ☒ Unannounced Inspection
- ☐ Announced Inspection

OPENING CONFERENCE

- ☒ Credentials Presented
- ☒ CBI warning to facility provided

The process description was obtained from Mr. Cardona.

Process Description:

Electro Prime Rossford (Electro Prime) electrocoats and powder coats motor vehicle parts and accessories. Electrocoating is a process for depositing paint on a surface using electrical current. There is one electrocoating line and one powder coating line that has two booths. Electrocoating provides a base coat and powder coating provides a top coat. Some parts receive base and top coats, some receive only a base coat, and some receive only a top coat.

The electrocoating line (emission unit K001) includes alkaline cleaning, rinsing and conditioning, zinc phosphating, electrocoating, post rinsing, and then oven curing. The powder coating line includes alkaline cleaning, rinsing and conditioning, zinc phosphating, oven drying, either automated or hand powder coating, and then oven curing.

The electrocoating tank has an epoxy in deionized water bath that is charged by a variable output direct current (DC) transformer. Epoxy is pumped to the tank throughout the day to maintain the desired solids content. Solvent is added to the tank when there are not parts in it.

The electrocoating line operates 16-18 hours per day, and the powder coating line operates 8 hours per day. The lines are normally operated Monday through Friday.

TOUR INFORMATION

EPA Toured the Facility: Yes

Data Collected and Observations:

1. The amount of epoxy and solvent added to the electrocoating bath is recorded daily in a spreadsheet. Epoxy usage is recorded to the nearest 125 gallons (half tote). Solvent addition is recorded in 5-gallon increments.
2. Epoxy is stored in two tanks. Solvent is received and stored in 55-gallon drums.
3. The powder coating booth exhausts indoors through a filter.
4. The facility has many vents to the roof for exhausting the production area, ovens, and process tank heaters. Mr. Church and I went to the roof to look at exhaust vents. Mr. Church pointed out the process vents. There were no visible emissions from them or any other vents over Electro Prime's operations at about 11:15 AM. Mr. Church stated that he could not think of any operation that would create a visible emission.

Field Measurements: were not taken during this inspection.

RECORDS REVIEW

1. The epoxy's volatile organic content (VOC), excluding water, is 0.45 lbs/gallon. The epoxy contains the hazardous air pollutant methyl isobutyl ketone at less than 1.0% by weight and the volatile organic compound 2-butoxyethanol. The solvent contains 2-butoxyethanol. The technical bulletins for the epoxy (brand name POWERCRON® 6000CX) and the solvent (brand name butyl CELLOSOLVE™) are attached. Partial safety data sheets for the epoxy and solvent are also attached.
2. I reviewed 2019 epoxy and solvent usage data after leaving the facility. The permit requires that the VOC content of the coating be recorded each month. The usage sheets include the volumes of epoxy and solvent added, but they do not include a calculation of the VOC content, as applied. The short-term VOC limit is 14 lbs/hour, which reflects the potential to emit in the initial permit-to-install application for the electrocoating line. Based on my review of usage data, the VOC emission rate was greater than 14 lbs/hour during May 2019.
3. Monthly average VOC emission rates and annual emissions were being calculated incorrectly. Attachment 4 is an example of a correct calculation for VOC emission rate.

CLOSING CONFERENCE**Concerns:**

1. I told Mr. Cardona that I would need to speak to someone who could explain the volatile organic compound (VOC) calculations in their record keeping spreadsheet. Mr. Cardona said that Kevin Meade, vice president, should be able to answer questions about the VOC calculations.

I spoke with Mr. Meade on October 9, 2019. He has been using a VOC value of 0.17 lbs/gal for POWERCRON® 6000CX in his calculations. I told him that PPG publishes a

value of 0.45 lbs/gal in its POWERCRON® 6000CX technical bulletin. He did not have an explanation for where he got the value he was using.

2. I also explained that the electrocoating line potential to emit is greater than 14 lbs VOC/hour. The actual emission rate was 15.2 lbs VOC/hour during May 2019.

SIGNATURES

Prepared by:

 Digitally signed by MARK CONTI
Date: 2019.10.09 14:29:13
-04'00'

Mark Conti, Team Leader/Environmental Engineer

Approved by:

 Digitally signed by BROOKE
FURIO
Date: 2019.10.09 14:58:08 -04'00'

Brooke Furio, Section Chief

APPENDICES AND ATTACHMENTS

1. POWERCRON® 6000CX and Butyl CELLOSOLVE™ and Technical Data Sheets (3 pages)
2. Partial Safety Data Sheets for Powercron Black Feed (POWERCRON® 6000CX) and Butyl CELLOSOLVE™ (5 pages)
3. January 1 – September 19, 2019, Epoxy and Solvent Usage Records (10 pages)
4. EPA Calculation of Monthly Average VOC Emission Rate (1 page)



TECHNICAL BULLETIN

Highlights

POWERCRON 6000CX is PPG's epoxy technology known for its robust operation.

Features include:

- Wide window of operation
- Excellent corrosion resistance
 - No lead, chrome or zinc
 - Excellent performance with non-chrome sealers
 - Improved performance with zirconium pretreatment
- Reduced emissions
 - VOC less than 0.5 lb/gal
 - Non-HAP coating
- Performance advantages
 - Good protective throwpower
 - Smooth film appearance
 - Good topcoatability
- One-Component feed system
 - Improved quality and consistency
 - Reduced lab testing
 - Simplified material handling

Technical Properties

Property	Test Method	Performance
Color	---	Black
Film Thickness	---	0.5 - 1.5 Mils
Gloss - 60 Degree	ASTM D523	65 – 85
Pencil Hardness	ASTM D3363	2H Minimum
Direct Impact	ASTM D2794	100 in-lb Minimum
Reverse Impact	ASTM D2794	60 in-lb Minimum
Crosshatch Adhesion	ASTM D3359	4B – 5B
Humidity	ASTM D1735	1000 Hours Minimum
Water Immersion	ASTM D870	250 Hours Minimum
Gravelometer	GM9508P	6 Minimum
Throwpower	GM9535P	12 – 15 inches

Cold Rolled Steel Lab Panels, Zinc Phosphate Pretreatment.
0.6 mils Average Film Thickness, Cure 20 Minutes @350°F

Property	Substrate / Pretreatment	Salt Spray* 1000 Hours	20 Cycle** Scab
Corrosion Resistance	CRS/Zinc Phos/Non-Chrome	1 – 2 mm	1 – 2 mm
	CRS/Iron Phos/Non-Chrome	3 – 6 mm	3 – 8 mm

(Average Total Scribe Creep), * Salt Spray - ASTM B117

** Cycle Scab - GM9511P, Cold Rolled Steel Lab Panels
Cure 20 Minutes @ 350°F

Commercial Uses

- Agricultural & Construction
- Automotive Parts
- Electrical Equipment
- Heavy Duty Trucks
- Underwriter Laboratory (UL)
- And many more

Application Data

Standard Bake: 20 Minutes at 350°F Metal Temperature

VOC: 0.45 lbs. per gallon minus water (as supplied)

HAPs: None

Heavy Metals: None

Note: Cationic epoxy technologies are not color stable.



PPG Industries
151 Colfax Street
Springdale, PA 15144
1-800-PPG-ECOAT
www.ppgcoat.com
ecoatinfo@ppg.com

The technical data presented in this bulletin is based upon information believed to be currently accurate. However, no guarantees of accuracy, comprehensiveness, or performance are given or implied. Continuous improvements in coatings technology may cause future technical data to vary from what is in the bulletin. Contact your PPG representative for the most up-to-date information.



BUTYL CELLOSOLVE™

Ethylene Glycol Monobutyl Ether



Description

A fast-evaporating glycol ether with an excellent balance of hydrophilic and hydrophobic character; excellent active solvency and coupling properties

Introduction

Butyl CELLOSOLVE glycol ether is a very versatile solvent product with a good balance of many different properties. With a nearly equal balance of hydrophobic and hydrophilic character, Butyl CELLOSOLVE glycol ether provides excellent performance in coatings, cleaners, and many other types of products. It is one of our fastest evaporating glycol ethers. Butyl CELLOSOLVE glycol ether is compatible with a wide range of resin types, and it also offers 100% water solubility.

Typical Physical Properties

These properties are typical but do not constitute specifications.

Molecular weight (g/mol)		118.2
Boiling point @ 760 mmHg, 1.01 bar	340°F	171°C
Flash point	149°F	65°C
Freezing point	-107°F	-77°C
Vapor pressure@ 20°C — extrapolated		0.66 mmHg 0.89 mbar
Specific gravity (25/25°C)		0.901
Density @ 20°C	7.53 lb/gal	0.902 g/cm ³
@ 25°C	7.49 lb/gal	0.898 g/cm ³
Viscosity (cP or mPa•s @ 25°C)		2.9
Surface tension (dynes/cm or mN/m @ 25°C)		27.4
Specific heat (J/g/°C @ 25°C)		2.38
Heat of vaporization (J/g) at normal boiling point		348
Net heat of combustion (kJ/g) — predicted @ 25°C		30.0
Autoignition temperature	471°F	224°C
Evaporation rate	n-butyl acetate = 1.0) (diethyl ether = 1.0)	0.079 154
Solubility, g/100 g @ 25°C		
Solvent in water		-
Water in solvent		-
Hansen solubility parameters(J/cm ³) ^{1/2}		
_d (Dispersion)		16.0
_p (Polar)		7.6
_h (Hydrogen bonding)		12.3
Flammable limits (vol.% in air)		
Lower (measured @ 170°C)		1.13
Upper (measured @ 180°C)		10.60

Classification/Registry Numbers††

CAS Number	111-76-2
AICS (Australia)	111-76-2
DSL (Canada)	111-76-2
ECL (Korea)	2-519
EINECS (EU)	203-905-0
MITI (Japan)	2-407
TSCA (U.S.)	111-76-2

†† NOTE: Classifications apply only to this glycol ether product. It is the responsibility of the formulator to ensure that the final finished product complies with the regulations of a given country prior to its sale or distribution in that country.

Suggested Applications

- Active solvent for solvent-based coatings.
- Coalescent for industrial water-based coatings.
- Coupling agent for architectural water-borne coatings.
- Coupling agent and solvent in household and industrial cleaners, rust removers, hard surface cleaners, and disinfectants.
- Primary solvent in solvent-based silk screen printing inks.
- Coupling agent for resins and dyes in water-based printing inks.
- Solvent for agricultural pesticides.

Features

- Powerful solvency
- Coupling ability
- Coalescing ability
- Moderate evaporation rate
- High dilution ratio
- Wide range of applications

Note: Consult the appropriate Material Safety Data Sheet for safety and handling guidelines for this product.

NOTICE: No freedom from any patent owned by Seller or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other governmental enactments. Seller assumes no obligation or liability for the information in this document. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.



™ Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow.

March 2004
Form No. 110-00623-0304

SAFETY DATA SHEET



Date of issue/Date of revision 13 February 2019
Version 10

Section 1. Identification

Product name POWERCRON BLACK FEED
Product code CF691B-524
Other means of identification Not available.
Product type Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Product use Industrial applications.
Use of the substance/mixture Coating. Paints. Painting-related materials.
Uses advised against Not applicable.

Manufacturer PPG Industries, Inc.
One PPG Place
Pittsburgh, PA 15272
Emergency telephone number (412) 434-4515 (U.S.)
(514) 645-1320 (Canada)
01-800-00-21-400 or+ 52 55 5559 1588 (Mexico)

Technical Phone Number : 1-800-245-2590 (CLEVELAND, OH) 8:00 a.m. - 5:00 p.m. EST

Section 2. Hazards identification

OSHA/HCS status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture CARCINOGENICITY - Category 2
TOXIC TO REPRODUCTION (Fertility) - Category 1B
TOXIC TO REPRODUCTION (Unborn child) - Category 1B
Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 35.9% (Oral), 39.8% (Dermal), 39.8% (Inhalation)

GHS label elements

Hazard pictograms



Signal word Danger
Hazard statements May damage fertility or the unborn child.
Suspected of causing cancer.

Precautionary statements

Product code CF691B-524

Date of issue 13 February 2019 Version 10

Product name POWERCRON BLACK FEED

I Section 2. Hazards identification

Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing.
Response	IF exposed or concerned: Get medical attention.
Storage	Store locked up.
Disposal	Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements	Contains isothiazolinones. May cause allergic reaction. Sanding and grinding dusts may be harmful if inhaled. Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and permanent brain and nervous system damage. Inhalation of vapor/aerosol concentrations above the recommended exposure limits causes headaches, drowsiness and nausea and may lead to unconsciousness or death. Emits toxic fumes when heated.
Hazards not otherwise classified	None known.

I Section 3. Composition/information on ingredients

Substance/mixture	Mixture
Product name	: POWERCRON BLACK FEED

Ingredient name	%	CAS number
Kaolin	1.0 - 55.0	1332-58-7
2-butoxyethanol	1.0 - 55.0	111-76-2
carbon black, respirable powder	51.0	1333-86-4
dibutyltin oxide	<1.0	818-08-6
4-methylpentan-2-one	<1.0	108-10-1

SUB codes represent substances without registered CAS Numbers.

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

I Section 4. First aid measures

If ingestion, irritation, any type of overexposure or symptoms of overexposure occur during or persists after use of this product, contact a POISON CONTROL CENTER, EMERGENCY ROOM OR PHYSICIAN immediately; have Safety Data Sheet information available. Never give anything by mouth to an unconscious or convulsing person.

Description of necessary first aid measures

Eye contact	Remove contact lenses, irrigate copiously with clean, fresh water, holding the eyelids apart for at least 10 minutes and seek immediate medical advice.
Inhalation	Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
Skin contact	Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.



SAFETY DATA SHEET

THE DOW CHEMICAL COMPANY

Product name: ButylCELLOSOLVE™ Solvent

Issue Date: 11/26/2018

Print Date: 11/27/2018

THE DOW CHEMICAL COMPANY encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: Butyl CELLOSOLVE™ Solvent

Recommended use of the chemical and restrictions on use

Identified uses: Industrial solvent for cleaner and coating formulations. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

COMPANY IDENTIFICATION

THE DOW CHEMICAL COMPANY
2030 DOW CENTER
MIDLAND MI 48674-0000
UNITED STATES

Isobutylene (IS):
PVSINOWOOD CHEMICALS, LLC
10000 Hapt, 1, 1, 1, 1
Ocellat, MI 48113
(3rd) 925.11.11
PVSINOWOOD W/S SOSI

Customer Information Number:

800-258-2436

SDSQuestion@dow.com

CONTROLLED DOCUMENT
IF STAMPED IN RED

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: CHEMTREC +1 800-424-9300

Local Emergency Contact: 800-424 -9300

2. HAZARDS IDENTIFICATION

Hazard classification

GHS classification in accordance with 29 CFR 1910.1200

Flammable liquids - Category 4

Acute toxicity - Category 4 - Oral

Acute toxicity - Category 4 - Inhalation

Acute toxicity - Category 4 - Dermal

Skin irritation - Category 2

Eye irritation - Category 2A

Label elements

Hazard pictograms



Signal word: **WARNING!**

Hazards

Combustible liquid.

Harmful if swallowed, in contact with skin or if inhaled.

Causes skin irritation.

Causes serious eye irritation.

Precautionary statements**Prevention**

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

Wash skin thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/ eye protection/ face protection.

Response

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.

IF ON SKIN: Wash with plenty of water. Call a POISON CENTER/doctor if you feel unwell.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If skin irritation occurs: Get medical advice/ attention.

If eye irritation persists: Get medical advice/ attention.

Take off contaminated clothing and wash before reuse.

In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage

Store in a well-ventilated place. Keep cool.

Disposal

Dispose of contents/ container to an approved waste disposal plant.

Other hazards

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Glycol ether

This product is a substance.

Component

CASRN

Concentration

Ethylene glycol monobutyl ether

111-76-2

> 99.0 %

4. FIRST AID MEASURES

Description Of first aid measures

General advice:

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air; if effects occur, consult a physician.

Skin contact: Wash off with plenty of water. Suitable emergency safety shower facility should be available in work area.

Eye contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: Do not induce vomiting. Seek medical attention immediately. If person is fully conscious give 1 cup or 8 ounces (240 ml) of water. If medical advice is delayed and if an adult has swallowed several ounces of chemical, then give 3-4 ounces (1/3-1/2 Cup) (90-120 ml) of hard liquor such as 80 proof whiskey. For children, give proportionally less liquor at a dose of 0.3 ounce (1 1/2 tsp.) (8 ml) liquor for each 10 pounds of body weight, or 2 ml per kg body weight [e.g., 1.2 ounce (2 1/3 tbsp.) for a 40 pound child or 36 ml for an 18 kg child].

Most important symptoms and effects, both acute and delayed:

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Due to structural analogy and clinical data, this material may have a mechanism of intoxication similar to ethylene glycol. On that basis, treatment similar to ethylene glycol intoxication may be of benefit. In cases where several ounces (60 - 100 ml) have been ingested, consider the use of ethanol and hemodialysis in the treatment. Consult standard literature for details of treatment. If ethanol is used, a therapeutically effective blood concentration in the range of 100 - 150 mg/dl may be achieved by a rapid loading dose followed by a continuous intravenous infusion. Consult standard literature for details of treatment. 4-Methyl pyrazole (Antizol®) is an effective blocker of alcohol dehydrogenase and should be used in the treatment of ethylene glycol (EG), di- or triethylene glycol (DEG, TEG), ethylene glycol butyl ether (EGBE), or methanol intoxication if available. Fomepizole protocol (Brent, J. et al., New England Journal of Medicine, Feb. 8, 2001, 344:6, p. 424-9): loading dose 15 mg/kg intravenously, follow by bolus dose of 10 mg/kg every 12 hours; after 48 hours, increase bolus dose to 15 mg/kg every 12 hours. Continue fomepizole until serum methanol, EG, DEG, TEG or EGBE are undetectable. The signs and symptoms of poisoning include anion gap metabolic acidosis, CNS depression, renal tubular injury, and possible late stage cranial nerve involvement. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. Maintain

TITLE V RECORDKEEPING LOG							
Month <u>Jan-19</u>							
Date	Resin added	Paste Added	Hexyl Butyl added	Permeate to drain	Hours of operation	voe / Hr Emitted	Total voe / Day
1					0	.00	.00
2	125		15		24	5.39	134.05
3	0		15		19	5.94	112.80
4	500		15		24	8.24	197.80
5	250			16		2.66	42.50
6	0				0	.00	.00
7	620		15	1200	18	9.46	170.20
8	375		15	1200	18	9.46	170.20
9	475		15	1200	16	9.10	145.55
10	240		15	0	18	8.53	153.60
11	500		15	0	18	10.99	197.80
12	0		15	900	16	4.80	76.80
13						.00	.00
14	0		15	0	19	5.94	112.80
15	500		15	800	19	8.73	165.80
16	500		15	0	19	10.41	197.80
17	250		15	1200	19	8.17	155.30
18	250		15	1200	19	5.65	107.30
19	250		15	0	16	9.71	155.30
20						.00	.00
21	0		15	600	18	6.27	112.80
22	700		15	600	19	10.94	207.80
23	250		15		19	10.94	207.80
24	650		15				
25	475		15				
26	0		0				
27	84250		15		13	9.51	155.30
28	0		0		5	.00	.00
29	0		15		19	10.41	197.80
30	625		0	1150	19	3.17	60.25
31	8285	Or	330	0	447		3608.05
Totals							
Permeate to drain						voe / Hr CHE	3608

TITLE V RECORDKEEPING LOG								
Month	Feb-19							
Date	Resin added	Paste Added	Butyl added	Hexyl added	Permeate to drain	Hours of operation	voc / Hr Emitted	Total voc / Day
1	0		15		0	17	6.64	112.80
2	0				0	1	.00	.00
3							.00	.00
4	425		15		0	24	7.71	185.05
5	500		15		0	24	8.24	197.80
6	625		15		500	24	8.29	199.05
7	500		15		0	24	8.24	197.80
8	500		15		0	24	8.24	197.80
9	0		0		0	16	.00	.00
10	125		0		0	10	2.13	21.25
11	500		15		1050	24	6.49	155.80
12	500		15		0	24	8.24	197.80
13	650		15		0	24	9.30	223.30
14	500		15		0	24	8.24	197.80
15	375		15		0	24	7.36	176.55
16							.00	.00
17							.00	.00
18	500		15		0	24	8.24	197.80
19	500		15		0	24	8.38	201.20
20	0		15		1200	24	2.70	64.80
21	520		15		800	24	7.05	169.20
22	500		15		0	24	8.24	197.80
23	500		0		500	16	4.06	65.00
24	0		0		0	10	.00	.00
25	625		15		0	24	9.3	219.05
26	375		15		1000	24	5.69	136.55
27	0		15		0	24	4.70	112.80
28	625		15		0	24	9.13	219.05
	9365	0	300	0		Totals 525	.00	3646.05
						Avg. VOC/ Hr/	6.94	
						5050		3646.05

TITLE V RECORDKEEPING LOG									
Month <u>Mar-19</u>									
Date	Resin added	Paste Added	Butyl added	Hexyl added	Permeate to drain	Hours of operation	VOE / Hr. Emitted	Total VOE / Day	
1	375				0	16	3.98	63.75	
2					0	0	.00	.00	
3	0				0	0	.00	.00	
4	650		15		0	24	9.30	223.30	
5	500		15		0	24	8.24	197.80	
6	500		15		0	24	8.24	197.80	
7	500		15		1200	24	6.24	149.80	
8	250		15		0	17	9.14	155.30	
9	0				0	16	.00	.00	
10	0				0	0	.00	.00	
11	500		15		0	24	8.24	197.80	
12			15		1000	20	3.03	72.80	
13	500		15		0	24	8.24	197.80	
14	500		15		0	24	8.24	197.80	
15	500		15		500	17	10.46	177.80	
16	250		15		0	16	9.71	155.30	
17	0				0	0	.00	.00	
18	125		15		500	24	4.75	114.05	
19		185	2425	15	0	0			
20					0	24	8.95	214.80	
21	500		15		600	24	7.24	173.80	
22	250		0		0	17	2.50	42.50	
23	0		0		0	16	.00	.00	
24					0	0	.00	.00	
25	250		15		0	20	7.77	155.30	
26	0		15		0	18	6.27	112.86	
27	125		15		0	20	6.70	134.05	
28	500		15		0	18	10.99	197.80	
29	500		15		1200	16	9.36	149.80	
30	125		10		0	0	.00	96.45	
31					0	0	.00	.00	
Totals						495		3563.45	
Avg. VOC / Hr.							7.20		
Permeate to dr in						5000	CHECK	3563.45	

TITLE: V 1: c: qRDKE E !!'J i: O							Total --	
Date added							voe /	
1	250	15	16	9.71	155.30			
2	500	15	16	9.71	155.30		Day	
3	500	15	16	9.71	155.30			
4	125	15	16	8.38	134.05			
5	500	15	16	12.36	197.80			
6	500	15	16	2.66	42.50			
7	500	15	16	0.00	0.00			
8	500	15	16	12.36	197.80			
9	125	15	16	8.38	134.05			
10	0	15	24	3.03	72.80			
11	500	15	24	8.24	197.80			
12	250	15	16	2.66	42.50			
13	250	15	16	0.00	0.00			
14	375	15	16	11.03	176.55			
15	375	15	16	11.03	176.55			
16	625	15	16	13.69	219.05			
17	375	15	16	11.03	176.55			
18	375	15	16	11.03	176.55			
19				0.00	0.00			
20				0.00	0.00			
21				0.00	0.00			
22	375	15	16	11.03	176.55			
23	250	15	16	9.71	155.30			
24	0	15	16	7.05	112.80			
25	500	15	16	10.36	165.80			
26	500	15	16	12.36	197.80			
27	500	15	16	12.36	197.80			
28	500	15	16	12.36	197.80			
29	375	15	16	11.03	176.55			
30	375	15	16	11.03	176.55			
31	7375	0	330	0	3623.35			
Totals :							3623.35	
Avg voe / Hr							35	
Perme,3t 19							35	

TITLE V RECORDKEEPING LOG

Month		May-19					Total	
Date	Resin added	Paste Added	Butyl added	Hexyl added	Permeate to drain	Hours of operation	VOE / Hr Emitted Day	VOE /
1	500		15		0	18	10.99	197.80
2	250		15		1000	18	6.41	153.30
3	375		15		0	18	9.81	176.55
4	250		15		0	16	2.66	42.50
5	500		15		0	18	10.99	197.80
6	250		15		0	18	8.63	155.30
7	500		15		0	24	8.24	197.80
8	250		15		0	16	9.71	155.30
9	375		15		1200	18	7.14	128.55
10								
11								
12								
13	500		15		0	16	12.36	197.80
14	250		15		0	18	8.63	155.30
15	500		15		0	18	10.99	197.80
16	325		15		1000	16	8.00	128.05
17	125		15		700	16.5	6.43	106.05
18								
19								
20	375		15		0	16	11.03	176.55
21	625		15		0	16	13.69	219.05
22	500		15		960	16	9.96	159.40
23	0		15		0	18	6.27	112.80
24	0		10		1000	18	1.96	3K20
25								
26								
27								
28	500		15		0	17	11.64	197.80
29								
30	375		15		0	16.5	10.70	176.55
31	125		15		0	16.5	10.70	176.55
Totals		8075	0	325	0	400	3542.35	
Avg								

Permeate to drain

c H - IS

TITLE V RECORDKEEPING LC5G								
Month + Jun-19								
Date	Resin added	Paste Added	Butyl added	Hexyl added	Permeate to drain	Hours of operation	voc / Hr Emitted	Total voc / Day
1							.00	.00
2							.00	.00
3	500		15		360	24	7.64	183.40
4	375		15		0	16	11.03	176.55
5	375		15		990	18	7.61	136.95
6	125		15		0	18	7.45	134.05
7	500		0		0	18	4.72	85.00
8							.00	.00
9							.00	.00
10	500		15		0	16	12.36	197.80
11	250		15		0	16	9.71	155.30
12	375		15		1200	16	8.03	128.55
13	375		15		0	16	11.03	176.55
14	0		10		0	16	4.70	75.20
15							.00	.00
16							.00	.00
17	375		15		0	16	11.03	176.55
18	375		15		0	24	7.36	176.55
19	375		15		0	16	11.03	176.55
20	375		0		0	18	7.45	134.05
21	0		0		0	17	.00	.00
22							.00	.00
23							.00	.00
24	375		15		0	16	11.03	176.55
25	500		15		1000	17	9.28	157.50
26	500		15		0	18	10.99	197.80
27	500		15		0	18	10.99	197.80
28	125		0		0	16	4.33	70.00
29							.00	.00
30							.00	.00
Totals						350	7.857	2749.95
Avg						Voc / Hr	7.857	
Permeate to drain						65Dr		
CHE								17.4995

TITLE V RECORDKEEPING LOG

Mo0th 11 19

Voe 1

Date	Resin added	Paste Added	Butyl added	Hexyl added	Permeate to drain	Hours of operation	Hr	Total Voe
1	375		15		0	16	11.03	176.55
2	375		15		0	16	11.03	176.55
3	125		0		1000	16	11.17	187.5
4							.00	.00
5	0		0		0	0	.00	.00
6			1				.00	.00
7							.00	.00
8	500		15		0	16	12.36	197.80
9	250		10		0	16	8.30	132.74
10			1				.00	.00
11	1	5	15		9	16	9.89	158.20
12			1			16	11.03	176.55
13							.00	.00
14							.00	.00
15	125		10		0	16	6.03	96.45
16	375		15		0	16	11.03	176.55
17	625		15		1000	17	10.53	179.05
18	500		15		0	16	12.36	197.80
19	0		0		0	16	.00	.00
20			1				.00	.00
21							.00	.00
22	250		10		0	16	7.36	117.70
23	250		10		1450	16	3.73	59.10
24	0		0		0	16	.00	.00
25	500		15		0	18	10.99	197.80
26	500		15		0	18	10.99	197.80
27							.00	.00
28							.00	.00
29	250		15		0	16	9.71	155.30
30	250		15		0	16	9.71	155.30
31							.00	.00
Totals	5750	0	207	0	4440	341	5.91	2356.54
Permeate to drain: 4440; CHECK								2356.54

1 TITLE V RECORDKEEPING LOG									
Month	Aug-19								
Date	Resin added	Paste Added	Butyl added	Hexyl added	Permeate to drain	Hours of operation	VOE 1 Hr. Emitted	Total VOC / Day	
1	500		15		0	16	12.36	197.80	
2	0		10		1000	16	2.20	35.20	
3							.00	.00	
4							.00	.00	
5	250		15		0	16	9.71	155.30	
6	250		15		0	17	9.14	155.30	
7	500		15		0	17	11.64	197.80	
8	250		15		0	16	9.71	155.30	
9	500		15		1080	17	9.09	154.60	
10							.00	.00	
11							.00	.00	
12	250		15		0	17	9.14	155.30	
13	125		10		0	18	5.36	96.10	
14	125		15		0	17	7.89	134.05	
15	125		15		960	18	5.31	95.65	
16	575		15		0	18	11.70	210.55	
17							.00	.00	
18							.00	.00	
19	125		15		0	18	7.45	134.05	
20	125		15		0	18	7.45	134.05	
21	500		15		900	18	8.99	161.80	
22	500		15		0	18	10.99	197.80	
23	125		0		0	18	1.18	21.25	
24							.00	.00	
25							.00	.00	
26	125		15		0	17	7.89	134.05	
27	125		15		0	18	7.45	134.05	
28	625		15		0	18	12.17	219.05	
29	500		15		840	17	9.66	164.20	
30	250		10		0	17	6.92	7.70	
31	6450	0	300	0	Totals	380	.00	.00	
					Permeate to drain	4780	VOE / Hr. 8.32	CH	3161.30

TITLE V RECORDKEEPING LOG						
Month	Sep-19					
1	250	15	900	6.63	119.30	
2	500	15	0	10.99	197.80	
3	250	15	0	0.00	155.30	
4	500	15	0	11.64	197.80	
5						
6						
7						
8	500	15	960	18.10	59.40	
9	500	15	0	10.99	197.80	
10	0	10	0	4.70	75.20	
11						
12	250	15	0	9.71	5.30	
13	0	0	600	1.50	-24.00	
14	0	15	0	36.97	80.00	
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
Totals	21250	15	10	83	1827.30	
Avg						
Perme						
Drain						

2019			
VOE			
Total Resin	64850.00	11,024.5	
Total Paste	0		
Total Butyl	2497	18777.4	
Total Hexel	0	0	
Total Hours	3561	VOC/	8.36898
	43,072904	29801.9	
VOC from permeant			
Net			
Jan	#VOC/ MONTH	Tons/ Mo	
Feb	3646	1.82	
Jun	257	1.18	
Oct	0	.00	
Nov	0	.00	
AL	2807	14	
NOTE: Formulas reviewed and revised by Kevin Meade for clarity and accuracy in this version.			

HOURLY VOC EMISSION RATE

Time period: May 1 – 31, 2019

Epoxy added (POWERCRON® 6000CX): 8,075 gal

Epoxy VOC content, less water and exempt solvents: 0.45 lbs/gal

Solvent added (butyl CELLOSOLVE™): 325 gal

Solvent VOC content: 7.49 lbs/gal

Hours of operation: 400 hours

Average VOC emission rate = total VOC / hours of operation

$$= (8,075 \text{ gal} \times 0.45 \text{ lbs/gal} + 325 \text{ gal} \times 7.49 \text{ lbs/gal}) / 400 \text{ hours}$$

$$= 15.2 \text{ lbs/hour}$$