



HD GRAPHICS INC

P.O. Box 299 - Ile Des Chenes, MB - R0A 0T0 - Phone: 204.878.4002
G.S.T. # 85906493

March 12th - 2014

Tracey Braun, Director

Conservation and Water Stewardship
Environmental Approval Branch
Box 80, Suite 160
123 Main St.
Winnipeg, MB
R3C 1A5

Dear Mrs. Braun:

Enclosed is our updated Environmental Act Proposal. I have updated the proposal to include a water testing report from ALS Global, as well as to included information on our air emissions. As previously reported in our first application, we have been working with a company to custom manufacture a waste water recycling system for us that would use a series of carbon filters to clean our water to make it potable, and allow us to recycle it through our wash bay area. I would like to speak to someone in your branch before we move forward with this system to make sure it is designed to meet the approval of the EAP. We have always used biodegradable, environmentally friendly chemicals at our facility for anything that goes through our septic system. We have been using Miller Environmental to dispose of any other waste that is not biodegradable, or environmentally friendly.

I have attached a description of what we do at our company, as well as a description of what inks and chemicals we use and how they are used.

I have also updated the proposal to contain physical copies of the MSDS Sheets, a floor plan for our facility, the land title for my property, and various satellite photos of our property for your review. I look forward to hearing from you in regards to this proposal, and working with the province to ensure that we are able to operate our business with the minimal impact on the environment.

Please contact me with any questions about these products or about the process in which they are used and/or disposed of.

Thank you

Derek Eastveld
President
HD Graphics Inc

Environment Act Proposal Form



Name of the development: HD GRAPHICS INC - Screen Printing Company	
Type of development per Classes of Development Regulation (Manitoba Regulation 164/88): Manufacturing & Processing Plant - Class 1	
Legal name of the proponent of the development: HD Graphics Inc	
Location (street address, city, town, municipality, legal description) of the development: 21105 Mondor Road, SE 15-9-4 EPM - Ile Des Chenes, RM of Tache - Manitoba - R0A 0T0	
Name of proponent contact person for purposes of the environmental assessment: Derek Eastveld	
Phone: 204-878-4002 Fax: 204-878-4003	Mailing address: Box 299 - Ile Des Chenes, MB - R0A 0T0
Email address: derek@hdgraphicsinc.com	
Webpage address: www.hdgraphicsinc.com	
Date: Mar 12th - 2014	Signature of proponent, or corporate principal of corporate proponent: Printed name:

A complete **Environment Act Proposal (EAP)** consists of the following components:

- **Cover letter**
- **Environment Act Proposal Form**
- **Reports/plans supporting the EAP** (see "Information Bulletin - Environment Act Proposal Report Guidelines" for required information and number of copies)
- **Application fee** (Cheque, payable to Minister of Finance, for the appropriate fee)

Submit the complete EAP to:

Director
Environmental Approvals Branch
Manitoba Conservation and Water Stewardship
Suite 160, 123 Main Street
Winnipeg, Manitoba R3C 1A5

For more information:

Phone: (204) 945-8321
Fax: (204) 945-5229
<http://www.gov.mb.ca/conservation/eal>

Per Environment Act Fees Regulation (Manitoba Regulation 168/96):	
Class 1 Developments	\$500
Class 2 Developments	\$5,000
Class 3 Developments:	
Transportation and Transmission Lines	\$5,000
Water Developments	\$50,000
Energy and Mining	\$100,000

Attention: EAP Approvals

The chemicals and inks we use (approx. yearly volumes included) are listed as follows:

Emulsions:

- 1.) Saati-Chem – Grafic HU – 8 Gallons per Year
- 2.) Saati-Chem – Textil PV – 24 Gallons per Year

Inks:

- 1.) Lancer – Excalibur Textile Ink – 25 Gallons per year
- 2.) Wilflex – Epic Series – Textile Ink – 10 Gallons per year
- 3.) Wilflex Bright Tiger – Textile Ink – 15 Gallons per year
- 4.) Nazdar – 1800 Series – Graphic Ink – 200 Gallons per year
- 5.) Nazdar – 3500 Series – Graphic Ink – 20 Gallons per year

Ink Wash:

- 1.) Univar LP10 – Laquer Thinner – 120 Gallons per year
- 2.) Saati-Chem – Remove PW2 – 5 Gallons per year

Screen Reclaim Chemicals:

- 1.) Saati-Chem – ER10 – 10 Gallons per year
- 2.) Lancer – Phantom 1000 – 5 Gallons per year
- 3.) Lancer – TR Blend – 50 Gallons per year

Here is a breakdown of how our printing process works, and what chemicals are involved.

A screen gets coated with Emulsion – it is a light sensitive material that allows us to put an image onto the screen to print.

Emulsion Spill Procedure:

In the event of a spill of this chemical, rags are used to wipe it up, which are disposed of by Millar Environmental. We also use ER-10 emulsion remover with the rags to remove all the chemical from the floor, also disposed of by Millar Environmental.

The image gets burnt into that emulsion. The Inks are used to put the image onto the substrate (t-shirt, vinyl, plastic signs...whatever we are printing. Each different substrate requires a different ink)

For Graphic Screens:

The excess ink is put back into its original container to be re-used on jobs in the future, we use the Univar LP-10 and cotton rags to wash the the remaining ink residue out of the screen when it comes off the press. Excess ink that expires get disposed of by Millar Environment.

Ink Spill Procedure:

In the event of an ink spill, rags are used to soak up the ink, LP-10 laquer thinner is used to clean the spill area, rags and excess ink are disposed of through Millar Environmental.

For Textile Screens:

The excess ink is put back into its original container to be re-used on jobs in the future, we use the Saati-Chem PW2 and cotton rags to wash the the remaining ink residue out of the screen when it comes off the press. Excess ink that expires get disposed of by Millar Environment.

Then both the Graphic and Textile screens get the same Chemicals for cleaning them back to an uncoated state. They Both get Saati-Chem ER10, then the Lancer Phantom 1000 and TR Blend if they are necessary.

A pressure washer is used for the final step of cleaning out the Screen Reclaim Chemicals. The water and Chemical mixture from that then passes through a filter system from CCI that I have include the PDF sheets for. This filters the water a little further before it is discharged into our septic tank. We have an ejector system here for our septic system that the liquid waste then passes out after our tank fills up.

Ink-Wash Spill Procedure:

In the event that ink wash chemicals are spilt, rags are used to mop up the chemical and are disposed of through Millar Environmental.

Reclaim Chemical Spill Procedure:

In the event that any of the Reclaim chemicals are split, rags are used to mop up the chemical and are disposed of through Millar Environmental

I have included all the MSDS sheets for the Chemicals and Inks.



Derek Eastveld

President

HD Graphics Inc

Ph: 1-204-878-4002

Attention: EAP Approvals

Potential Impact to waste water field:

Right now the impact to the waste water field is possible overland flooding. All the chemicals that are sent out through the ejector system are biodegradable. We sent off samples of that water to ALS Global for testing, the test results are included in this package. Once we have an approval on the system we are looking to build that will recycle all of our water through a closed loop system, then we will have another study done on the waste water. The report on the water was not 100% complete by the time this proposal was due, the remaining information will be available after March 20th, 2014.

The volume of water we currently use averages out to 1100 Gallons per month.

Once our new water recycling system is approved and installed, we will be writing up a spill containment procedure in the event that the system fails and we the government requires us to dispose of the water as hazardous waste. We will also have liquid absorbent socks on hand to contain the spill area.

Air Emissions:

Our drying units in both the graphics and textile department contain fans that help draw heat away from the equipment, and the substrates that are passing through them. Those units are vented out of our building using 12" circular ducting. There are no air filtration units on these pieces of equipment, or currently in our building. We have fresh air intake piping also attached to these units to help make up the air they take out.

There are currently 3 dryers in our facility that have exhaust systems. They are in operation for the following amount of time:

Textile Dryer – 7 hours per day on average

Graphic UV Dryer – Model 48-10 – 7 hours per day on average

Graphic UV Dryer – Model 60-24 – only as required – 200 hours per year on average.

The VOC/emissions information on the products we used are detailed in the MSDS sheets provided.



Derek Eastveld

President

HD Graphics Inc

Ph: 1-204-878-4002

PROXIMITY TO WATER SOURCE

LEGEND

■ Yard Site

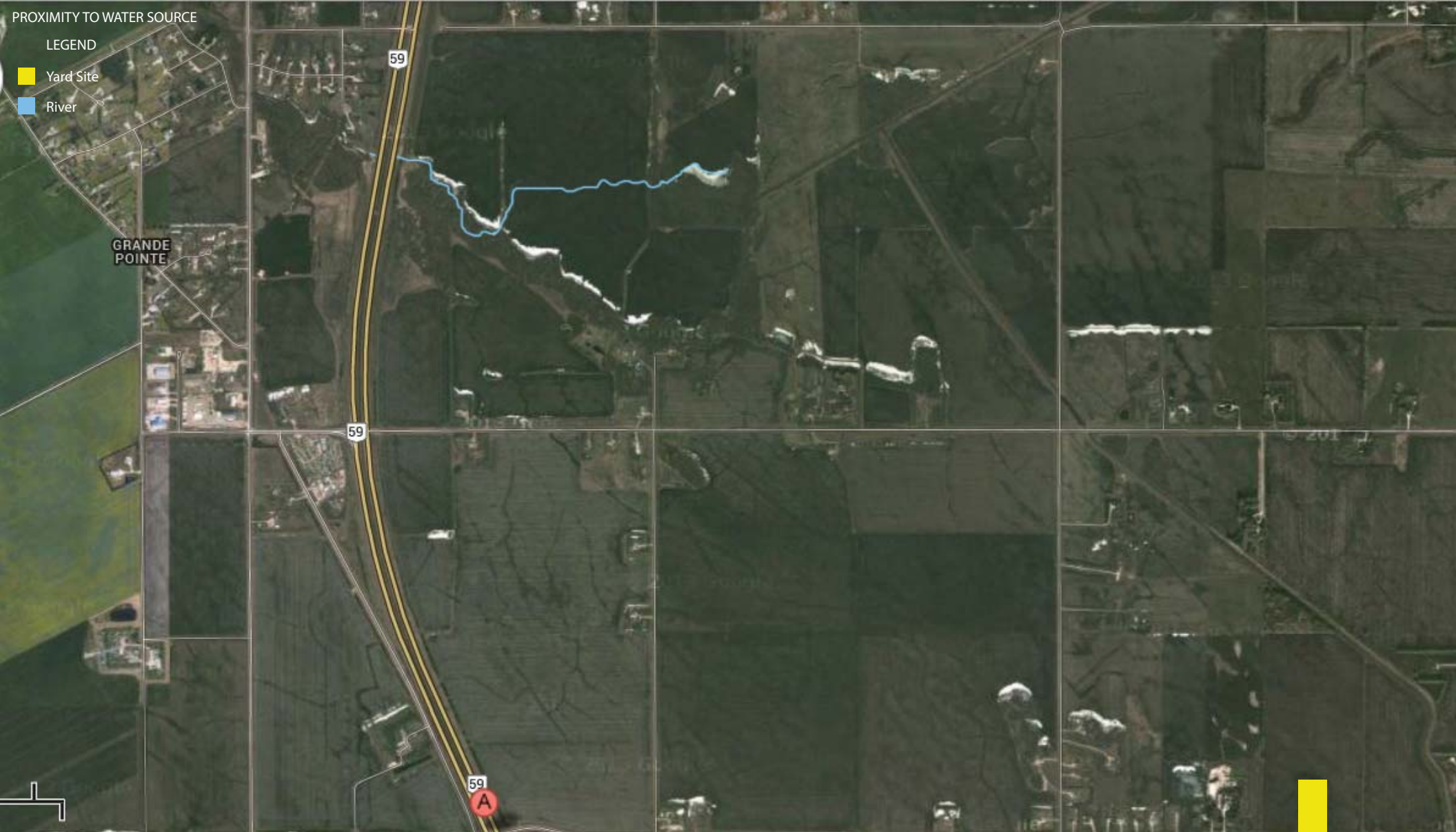
■ River

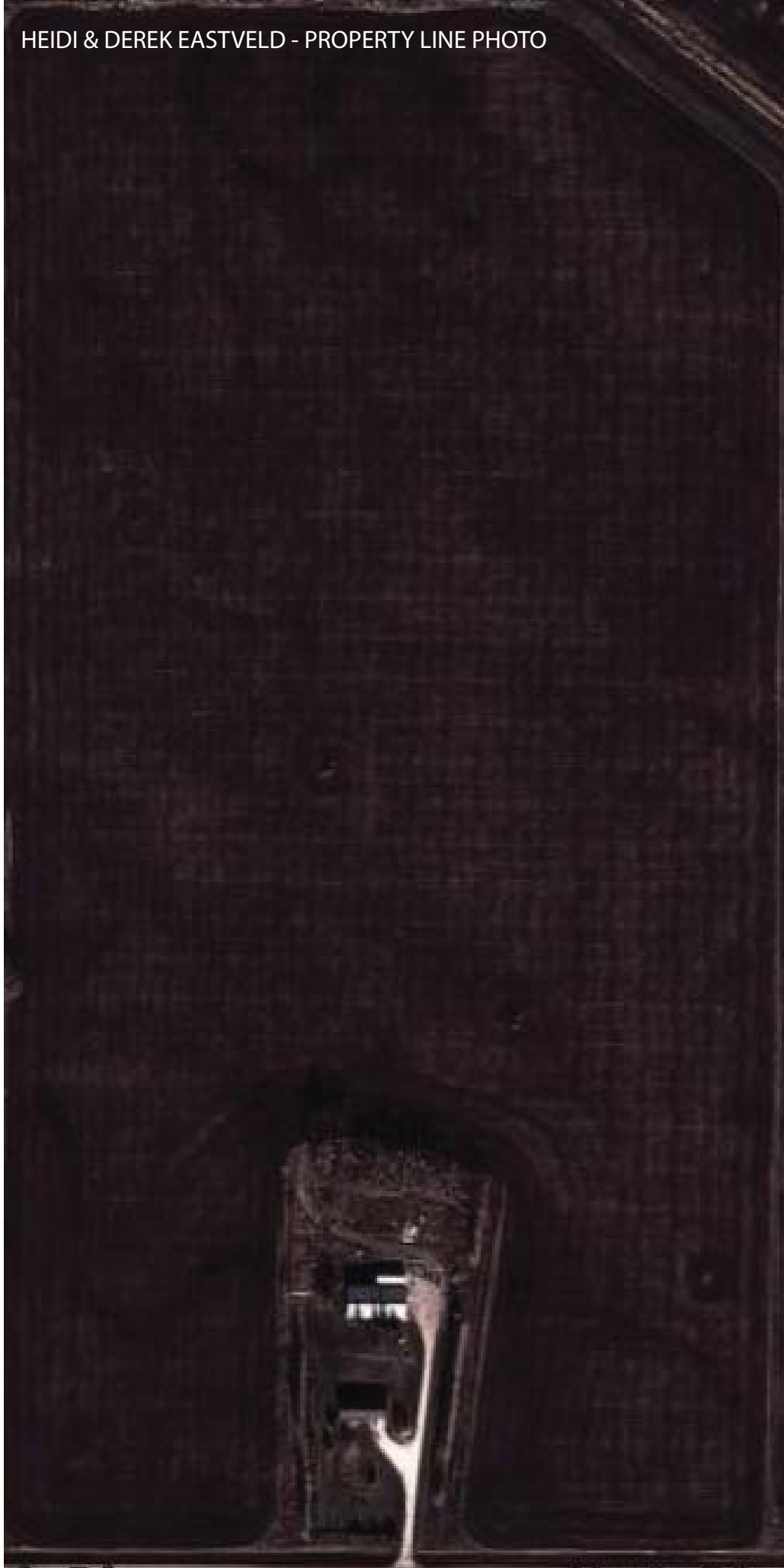
GRANDE
POINTE

59

59

59
A





Mondor Rd

Mondor Rd

YARD SIDE - WELL WATER AND EJECTOR SYSTEM LOCATIONS

- LEGEND
- Ejector System
 - Supply Well
 - Return Well

1cm = 20 ft.



DATE: 2014/01/20
TIME: 12:23

MANITOBA

TITLE NO: 2262799/1

STATUS OF TITLE

PAGE: 1

STATUS OF TITLE.....	ACCEPTED	PRODUCED FOR..	DEREK EASTVELD
ORIGINATING OFFICE...	WINNIPEG	ADDRESS.....	BOX 299
REGISTERING OFFICE...	WINNIPEG		ILE DES CHENES, MB
REGISTRATION DATE....	2007/11/02		ROA OTO
COMPLETION DATE.....	2007/11/13	CLIENT FILE...	NA
		PRODUCED BY...	A.JANKOWSKI

LEGAL DESCRIPTION:

DEREK ROSS EASTVELD AND HEIDI SUSAN EASTVELD
BOTH OF ILE DES CHENES, MANITOBA

ARE REGISTERED OWNERS AS JOINT TENANTS SUBJECT TO SUCH ENTRIES
RECORDED HEREON IN THE FOLLOWING DESCRIBED LAND:

W 1/2 OF SE 1/4 15-9-4 EPM
EXC FIRSTLY: PUBLIC DRAIN PLAN 3469 WLTO AND
SECONDLY: WATER CONTROL WORKS PLAN 18131 WLTO

ACTIVE TITLE CHARGE(S):

205414/1	ACCEPTED	CAVEAT	REG'D: 1967/05/10
	FROM/BY:	MANITOBA HYDRO ELECTRIC BOARD	
	TO:		
	CONSIDERATION:	NOTES:	ALL PINK ON PLAN 9154

261069/1	ACCEPTED	CAVEAT	REG'D: 1967/05/10
	FROM/BY:	MANITOBA TELEPHONE SYSTEM	
	TO:		
	CONSIDERATION:	NOTES:	SLY 40 FT

3535043/1	ACCEPTED	MORTGAGE	REG'D: 2007/11/02
	FROM/BY:	DEREK ROSS EASTVELD AND HEIDI SUSAN EASTVELD	
	TO:	DUFFERIN CREDIT UNION LIMITED	
	CONSIDERATION:	\$385,000.00	NOTES:

CHARGES AFFECTING THIS INSTRUMENT:
4393922/1 ACCEPTED AMENDING AGREEMENT

4393922/1	ACCEPTED	AMENDING AGREEMENT	REG'D: 2013/08/21
	FROM/BY:	ACCESS CREDIT UNION LIMITED	
	TO:	DEREK ROSS EASTVELD & HEIDE SUSAN EASTVELD	
	CONSIDERATION:	NOTES:	

CERTIFIED TRUE EXTRACT PRODUCED FROM THE LAND TITLES DATA
STORAGE SYSTEM ON 2014/01/20 OF TITLE NUMBER 2262799/1

***** STATUS OF TITLE 2262799/1 CONTINUED ON NEXT PAGE *****

DATE: 2014/01/20
TIME: 12:23

MANITOBA

TITLE NO: 2262799/1

STATUS OF TITLE

PAGE: 2

STATUS OF TITLE..... ACCEPTED
ORIGINATING OFFICE... WINNIPEG
REGISTERING OFFICE... WINNIPEG
REGISTRATION DATE.... 2007/11/02
COMPLETION DATE..... 2007/11/13

PRODUCED FOR.. DEREK EASTVELD
ADDRESS..... BOX 299
ILE DES CHENES, MB
ROA OTO

CLIENT FILE... NA
PRODUCED BY... A.JANKOWSKI

ADDRESS(ES) FOR SERVICE:

EFFECT	NAME AND ADDRESS	POSTAL CODE
ACTIVE	DEREK ROSS EASTVELD BOX 299 ILE DES CHENES MB	ROA OTO
ACTIVE	HEIDI SUSAN EASTVELD BOX 299 ILE DES CHENES MB	ROA OTO

ORIGINATING INSTRUMENT(S):

REGISTRATION NUMBER	TYPE	REG. DATE	CONSIDERATION	SWORN VALUE
3535042/1	T	2007/11/02	\$385,000.00	\$385,000.00

PRESENTED BY: SMITH NEUFELD JODOIN-NIVERVILL
FROM: INGRID LORRAINE PLETT
TO: DEREK ROSS EASTVELD AND HEIDI SUSAN EASTVELD

FROM TITLE NUMBER(S):

1233075/1 ALL

LAND INDEX:

LOT	QUARTER SECTION	SECTION	TOWNSHIP	RANGE
	SE	15	9	4E

NOTE: W 1/2 EX PLANS 3469 & 18131

ACCEPTED THIS 2ND DAY OF NOVEMBER, 2007
BY A.GWIZON FOR THE DISTRICT REGISTRAR OF
THE LAND TITLES DISTRICT OF WINNIPEG.

CERTIFIED TRUE EXTRACT PRODUCED FROM THE LAND TITLES DATA
STORAGE SYSTEM ON 2014/01/20 OF TITLE NUMBER 2262799/1.

***** END OF STATUS OF TITLE 2262799/1 *****



Water Filtration

STAINLESS STEEL CONSTRUCTION

Chemical Consultants, Inc. offers a simple, affordable solution for screen printers that need to deal with the disposal, treatment or recycling of wastewater that contains contaminants which are a result of the screen printing process. These units utilize CCI's Clearwater - chemical reactants to filter contaminants from the waste water. CCI also offers a wide range of equipment to handle a variety of needs that printers encounter.



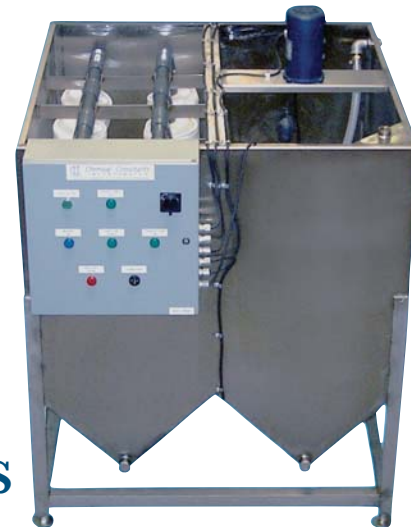
CCI-5CFS

Product Overview

- ❖ Fully Automatic filtration
- ❖ Stainless Steel Construction
- ❖ Capacity 300 Gallons per hour
- ❖ Continuous Flow
- ❖ Provides High Water Quality
- ❖ User-Friendly, Fast and Simple
- ❖ Low Maintenance
- ❖ Minimal Space Requirement

Product Details

- ❖ Unit Dimensions: 71" x 48" x 62" (w/hopper)
- ❖ Electrical: 220V / 20 AMPS / Single Phase



CCI-150SFS

Product Overview

- ❖ Semi-Automatic filtration
- ❖ Stainless Steel Construction
- ❖ Capacity 150 Gallons Per Batch
- ❖ Reduces On-Going Costs
- ❖ Provides High Water Quality
- ❖ User-Friendly, Fast and Simple
- ❖ Low Maintenance
- ❖ Minimal Space Requirement

Product Details

- ❖ Unit Dimensions: 48" x 48" x 69"
- ❖ Electrical: 115V / 15 AMPS

SFS-100



Product Description

- ❖ Stainless Steel Construction
- ❖ Reduces Waste into Drains
- ❖ Roll to Roll Operation
- ❖ Easily Adapts to existing Booths
- ❖ Low Maintenance
- ❖ Minimal Space Requirement
- ❖ Easy Roll-Out Casters
- ❖ Dimensions: 30"x 32"x 19½"

Filter Media

150 Yard Replacement Roll



Sump Pump

Heavy Duty Chemical Resistant
Allows pumping to remote drain
location.





CASH CLIENT QUOTES
ATTN: DEREK EASTVELD
HD Graphics Inc
21105 Mondor Rd
Ile Des Chenes MB R0A 0T0

Date Received: 07-MAR-14
Report Date: 14-MAR-14 08:21 (MT)
Version: DRAFT

Client Phone: 204-878-4002

Certificate of Analysis

Lab Work Order #: L1429878
Project P.O. #: On Hold for payment \$434.83
Job Reference: HD GRAPHICS INC - ILE DES CHENES, MB
C of C Numbers:
Legal Site Desc:

DRAFT

Craig Riddell
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1429878-1 WASHBAY SAMPLE							
Sampled By: CLIENT on 07-MAR-14 @ 11:30							
Matrix: Water							
Miscellaneous Parameters							
Biochemical Oxygen Demand	430		100	mg/L		08-MAR-14	R2803880
Chemical Oxygen Demand	1950	DLA	100	mg/L		11-MAR-14	R2803056
Conductivity	1480		20	umhos/cm		08-MAR-14	R2801968
Phosphorus (P)-Total	0.149		0.010	mg/L		10-MAR-14	R2802383
Sodium Adsorption Ratio	4.1		0.030			12-MAR-14	
Total Suspended Solids	415		5.0	mg/L		11-MAR-14	R2803430
pH	7.58		0.10	pH units		08-MAR-14	R2801968
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.253		0.0050	mg/L	11-MAR-14	11-MAR-14	R2803300
Antimony (Sb)-Total	0.00375		0.00020	mg/L	11-MAR-14	11-MAR-14	R2803300
Arsenic (As)-Total	0.00185		0.00020	mg/L	11-MAR-14	11-MAR-14	R2803300
Barium (Ba)-Total	0.0423		0.00020	mg/L	11-MAR-14	11-MAR-14	R2803300
Beryllium (Be)-Total	<0.00020		0.00020	mg/L	11-MAR-14	11-MAR-14	R2803300
Bismuth (Bi)-Total	0.00074		0.00020	mg/L	11-MAR-14	11-MAR-14	R2803300
Boron (B)-Total	0.541		0.010	mg/L	11-MAR-14	11-MAR-14	R2803300
Cadmium (Cd)-Total	0.000095		0.000010	mg/L	11-MAR-14	11-MAR-14	R2803300
Calcium (Ca)-Total	46.6		0.10	mg/L	11-MAR-14	11-MAR-14	R2803300
Cesium (Cs)-Total	<0.00010		0.00010	mg/L	11-MAR-14	11-MAR-14	R2803300
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	11-MAR-14	11-MAR-14	R2803300
Cobalt (Co)-Total	0.0447		0.00020	mg/L	11-MAR-14	11-MAR-14	R2803300
Copper (Cu)-Total	0.319		0.00020	mg/L	11-MAR-14	11-MAR-14	R2803300
Iron (Fe)-Total	<0.10		0.10	mg/L	11-MAR-14	11-MAR-14	R2803300
Lead (Pb)-Total	0.00205		0.000090	mg/L	11-MAR-14	11-MAR-14	R2803300
Lithium (Li)-Total	0.0583		0.0020	mg/L	11-MAR-14	11-MAR-14	R2803300
Magnesium (Mg)-Total	50.5		0.010	mg/L	11-MAR-14	11-MAR-14	R2803300
Manganese (Mn)-Total	0.0119		0.00030	mg/L	11-MAR-14	11-MAR-14	R2803300
Molybdenum (Mo)-Total	0.00200		0.00020	mg/L	11-MAR-14	11-MAR-14	R2803300
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	11-MAR-14	11-MAR-14	R2803300
Phosphorus (P)-Total	0.24		0.10	mg/L	11-MAR-14	11-MAR-14	R2803300
Potassium (K)-Total	11.1		0.020	mg/L	11-MAR-14	11-MAR-14	R2803300
Rubidium (Rb)-Total	0.00551		0.00020	mg/L	11-MAR-14	11-MAR-14	R2803300
Selenium (Se)-Total	<0.0010		0.0010	mg/L	11-MAR-14	11-MAR-14	R2803300
Silicon (Si)-Total	5.26		0.10	mg/L	11-MAR-14	11-MAR-14	R2803300
Silver (Ag)-Total	<0.00010		0.00010	mg/L	11-MAR-14	11-MAR-14	R2803300
Sodium (Na)-Total	170		0.030	mg/L	11-MAR-14	11-MAR-14	R2803300
Strontium (Sr)-Total	0.429		0.00010	mg/L	11-MAR-14	11-MAR-14	R2803300
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	11-MAR-14	11-MAR-14	R2803300
Thallium (Tl)-Total	<0.00010		0.00010	mg/L	11-MAR-14	11-MAR-14	R2803300
Thorium (Th)-Total	<0.00010		0.00010	mg/L	11-MAR-14	11-MAR-14	R2803300
Tin (Sn)-Total	0.00084		0.00020	mg/L	11-MAR-14	11-MAR-14	R2803300
Titanium (Ti)-Total	<0.00050		0.00050	mg/L	11-MAR-14	11-MAR-14	R2803300
Tungsten (W)-Total	<0.00010		0.00010	mg/L	11-MAR-14	11-MAR-14	R2803300
Uranium (U)-Total	0.00061		0.00010	mg/L	11-MAR-14	11-MAR-14	R2803300
Vanadium (V)-Total	0.00030		0.00020	mg/L	11-MAR-14	11-MAR-14	R2803300
Zinc (Zn)-Total	0.178		0.0020	mg/L	11-MAR-14	11-MAR-14	R2803300
Zirconium (Zr)-Total	0.00042		0.00040	mg/L	11-MAR-14	11-MAR-14	R2803300
Nitrogen Total							
Nitrate as N by Ion Chromatography							
Nitrate-N	0.33		0.25	mg/L		08-MAR-14	R2802875
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.35		0.35	mg/L		12-MAR-14	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1429878-1 WASHBAY SAMPLE							
Sampled By: CLIENT on 07-MAR-14 @ 11:30							
Matrix: Water							
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.25	DLM	0.25	mg/L		08-MAR-14	R2802875
Total Kjeldahl Nitrogen							
Total Kjeldahl Nitrogen	8.5	DLA	1.0	mg/L	08-MAR-14	11-MAR-14	R2802876
Total Nitrogen Calculated							
Total Nitrogen	8.5		1.0	mg/L		12-MAR-14	
VOC routine							
DRAFT							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
DLM	Detection Limit Adjusted due to sample matrix effects.
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-WP	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B
<p>The sample is incubated for 5 days at 20 degrees Celcius. Comparison of dissolved oxygen content at the beginning and end of incubation provides a measure of biochemical oxygen demand. If carbonaceous BOD is requested, TCMP is added to the sample to chemically inhibit nitrogenous oxygen demand. If soluble BOD is requested, the sample is filtered prior to analysis. Surface waters have a DL of 1 mg/L. Effluents are diluted according to their history and will have a sample DL of 6 mg/L or greater, depending on the dilutions used.</p>			
COD-WP	Water	Chemical Oxygen Demand	APHA 5220 D
<p>The Chemical Oxygen Demand (COD) test is used to estimate the amount of organic matter in the water. The sample is added to HACH brand COD tubes, which contain a premixed volume of reagents. The sample is then heated for two hours on the COD reactor with a strong oxidizing agent, potassium dichromate. The COD reagents also contain silver and mercury ions. Silver is used as a catalyst and mercury is used to complex chloride interference. Oxidizable organic compounds react, reducing the dichromate ion to green chromic ion.</p> <p>For the 10 - 150 mg/L range the remaining Cr6+ is measured colorimetrically and a decrease in absorbance at 420 nm is proportional to the COD. For the 100 - 1500 mg/L range the amount of Cr3+ produced is measured colorimetrically and an increase in absorbance at 620 nm is proportional to the COD. Samples with concentrations > 1500 mg/L can be diluted into either linear range.</p>			
EC-WP	Water	Conductivity	APHA 2510B
<p>Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.</p>			
ETL-N-TOT-ANY-WP	Water	Total Nitrogen Calculated	Calculated
ETL-SAR-CALC-TOT-WP	Water	Sodium Adsorption Ratio	Calculation
MET-T-L-MS-WP	Water	Total Metals by ICP-MS	APHA 3030E/EPA 6020A-TL
<p>This analysis involves preliminary sample treatment by hotblock acid digestion (APHA 3030E). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).</p>			
N-TOTKJ-WP	Water	Total Kjeldahl Nitrogen	Quickchem method 10-107-06-2-E Lachat
<p>Samples are digested with a sulphuric acid solution, cooled, diluted with water, and analyzed for ammonia. Total Kjeldahl nitrogen is the sum of free-ammonia and organic nitrogen compounds which are converted to ammonium sulphate through this digestion process. Analysis is performed by Flow Injection Analysis (FIA). The pH of the digested sample is raised to a known, basic pH by neutralization with a concentrated buffer solution. This neutralization converts the ammonium cation to ammonia. The ammonia produced is heated with salicylate and hypochlorite to produce blue colour which is proportional to the ammonia concentration.</p>			
NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-WP	Water	Nitrite as N by Ion Chromatography	EPA 300.1 (modified)
<p>Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.</p>			
NO3-IC-WP	Water	Nitrate as N by Ion Chromatography	EPA 300.1 (modified)
<p>Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.</p>			
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS
<p>This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample.</p>			
PH-WP	Water	pH	APHA 4500H
<p>The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.</p>			
SOLIDS-TOTSUS-WP	Water	Total Suspended Solids	APHA 2540 D (modified)
<p>Total suspended solids in aqueous matrices is determined gravimetrically after drying the residue at 103 - 105°C.</p>			

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

*mg/kg - milligrams per kilogram based on dry weight of sample
 mg/kg wwt - milligrams per kilogram based on wet weight of sample
 mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
 mg/L - unit of concentration based on volume, parts per million.*

< - Less than.

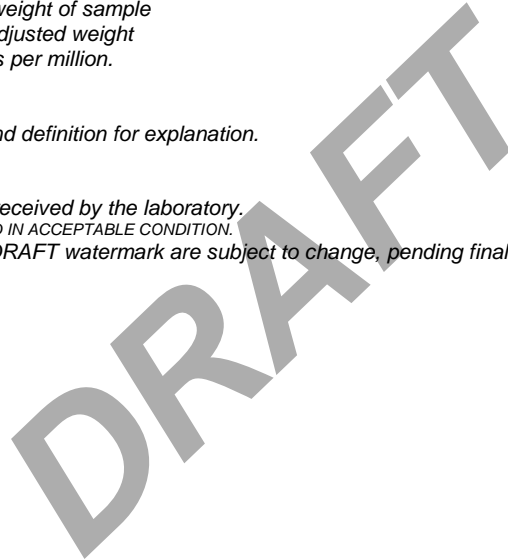
D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.





L1429878-COFC

Analytical Request Form
ree: 1 800 668 9878
sglobal.com

COC #

L1429878

Page ___ of ___

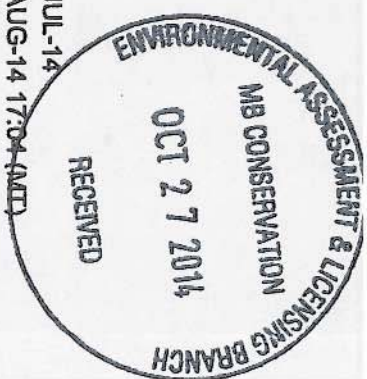
Report To					Service Requested (Rush for routine analysis subject to availability)																				
Company: HD GRAPHICS INC (W8000 Cash Client)					<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Other																				
Contact: DEREK EASTVELD					<input checked="" type="checkbox"/> PDF <input type="checkbox"/> Excel <input type="checkbox"/> .Digital <input type="checkbox"/> Fax																				
Address: 21105 Mondor Rd Ile Des Chenes, MB, ROA 0T0					Email 1: derek@hdgraphicsinc.com																				
Phone: 204-878-4002 Cell: 204-226-7095					Email 2:																				
Invoice To Same as Report? <input type="checkbox"/> Yes <input type="checkbox"/> No					Email 3:																				
Hardcopy of Invoice with Report? <input type="checkbox"/> Yes <input type="checkbox"/> No					Analysis Request																				
Company:					Please indicate below Filtered, Preserved or both (F, P, F/P)																				
Contact:																									
Address:																									
Phone: Fax:																									
Lab Work Order # (lab use only)					Client / Project Information																				
ALS Contact:					Job #: HD Graphics Inc - Ile Des Chenes, MB																				
					PO / AFE:																				
					LSD:																				
					Quote #: Q44193																				
Sample #	Sample Identification (This description will appear on the report)	Date Sampled	Time Sampled	Sample Type	BOD-WP	COD-WP	PH-WP	EC-WP	SOLIDS-TOTSUS-WP	MET-T-L-MS-WP	ETL-SAR-CALC-TOT-WP	N-TOT-WP	P-T-COL-WP	VOC-ROU-HS-WP											Number of Containers
1	Washbay Sample	Mar 7th - 2014	11:30am	Water:																					
	Cost \$414.12 per sample																								
Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details																									
Bottles Required per sample : 500 ml BOD, 500 ml Routine, 250 ml Metals + Nitric Acid Pres, 250 ml Amber Glass Nutrient + Sulphuric Acid pres, 3 x 40 ml VOC Vials																									
Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.																									
By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.																									
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.																									
SHIPMENT RELEASE (client use)					SHIPMENT RECEPTION (lab use only)					SHIPMENT VERIFICATION (lab use only)															
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations:															
			mps	7-3-14		°C				Yes / No ? If Yes add SIF															



CASH CLIENT QUOTES
ATTN: DEREK EASTVELD
HD Graphics Inc
21105 Mondor Rd
Ile Des Chenes MB R0A 0T0


Date Received: 24-JUL-14
Report Date: 08-AUG-14 17:04:40UTC
Version: FINAL

Client Phone: 204-878-4002



Certificate of Analysis

Lab Work Order #: L1492105
Project P.O. #: Paid by visa \$434.83 25-JUL-14
Job Reference:
C of C Numbers:
Legal Site Desc:


Craig Riddell
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 1329 Nakwa Road East, Unit 12, Wrinipig, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721
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Environmental 

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ALS ENVIRONMENTAL ANALYTICAL REPORT

L1492105 CONTD....
PAGE 2 of 6
Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1492105-1	ILE DE CHIENE						
Sampled By:	Lula Z on 24-JUL-14 @ 14:15						
Matrix:	Water						
Miscellaneous Parameters							
Biochemical Oxygen Demand	<6.0		6.0	mg/L	07-AUG-14	07-AUG-14	R2911198
Chemical Oxygen Demand	<20		20	mg/L	07-AUG-14	07-AUG-14	R2900050
Conductivity	1230			umhos/cm	07-AUG-14	07-AUG-14	R2898912
Phosphorus (P)-Total	5.20	DLA	0.050	mg/L	07-AUG-14	07-AUG-14	R2902453
Sodium Adsorption Ratio	5.12		0.030	mg/L	07-AUG-14	07-AUG-14	R2903094
Total Suspended Solids	<5.0		5.0	mg/L	07-AUG-14	07-AUG-14	R2898912
pH	8.62		0.10	pH units	07-AUG-14	07-AUG-14	R2911198
Total Metals by ICP-AES							
Aluminum (Al)-Total	0.0081		0.0050	mg/L	07-AUG-14	07-AUG-14	R2911198
Antimony (Sb)-Total	0.00060		0.00020	mg/L	07-AUG-14	07-AUG-14	R2911198
Arsenic (As)-Total	0.00338		0.00020	mg/L	07-AUG-14	07-AUG-14	R2911198
Barium (Ba)-Total	0.0177		0.00020	mg/L	07-AUG-14	07-AUG-14	R2911198
Beryllium (Be)-Total	<0.00020		0.00020	mg/L	07-AUG-14	07-AUG-14	R2911198
Bismuth (Bi)-Total	<0.00020		0.00020	mg/L	07-AUG-14	07-AUG-14	R2911198
Boron (B)-Total	0.378		0.010	mg/L	07-AUG-14	07-AUG-14	R2911198
Cadmium (Cd)-Total	0.000015		0.000010	mg/L	07-AUG-14	07-AUG-14	R2911198
Calcium (Ca)-Total	41.1		0.10	mg/L	07-AUG-14	07-AUG-14	R2911198
Cesium (Cs)-Total	0.00276		0.00010	mg/L	07-AUG-14	07-AUG-14	R2911198
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	07-AUG-14	07-AUG-14	R2911198
Cobalt (Co)-Total	<0.00020		0.00020	mg/L	07-AUG-14	07-AUG-14	R2911198
Copper (Cu)-Total	0.00403		0.00020	mg/L	07-AUG-14	07-AUG-14	R2911198
Iron (Fe)-Total	<0.10		0.10	mg/L	07-AUG-14	07-AUG-14	R2911198
Lead (Pb)-Total	0.00148		0.000090	mg/L	07-AUG-14	07-AUG-14	R2911198
Lithium (Li)-Total	0.0703		0.0020	mg/L	07-AUG-14	07-AUG-14	R2911198
Magnesium (Mg)-Total	41.4		0.010	mg/L	07-AUG-14	07-AUG-14	R2911198
Manganese (Mn)-Total	0.0143		0.00030	mg/L	07-AUG-14	07-AUG-14	R2911198
Molybdenum (Mo)-Total	0.00171		0.00020	mg/L	07-AUG-14	07-AUG-14	R2911198
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	07-AUG-14	07-AUG-14	R2911198
Phosphorus (P)-Total	5.26		0.10	mg/L	07-AUG-14	07-AUG-14	R2911198
Potassium (K)-Total	51.7		0.020	mg/L	07-AUG-14	07-AUG-14	R2911198
Rubidium (Rb)-Total	0.127		0.00020	mg/L	07-AUG-14	07-AUG-14	R2911198
Selenium (Se)-Total	<0.0010		0.0010	mg/L	07-AUG-14	07-AUG-14	R2911198
Silicon (Si)-Total	13.9		0.10	mg/L	07-AUG-14	07-AUG-14	R2911198
Silver (Ag)-Total	<0.00010		0.00010	mg/L	07-AUG-14	07-AUG-14	R2911198
Sodium (Na)-Total	194		0.030	mg/L	07-AUG-14	07-AUG-14	R2911198
Strontium (Sr)-Total	0.395		0.00010	mg/L	07-AUG-14	07-AUG-14	R2911198
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	07-AUG-14	07-AUG-14	R2911198
Thallium (Tl)-Total	<0.00010		0.00010	mg/L	07-AUG-14	07-AUG-14	R2911198
Thorium (Th)-Total	<0.00010		0.00010	mg/L	07-AUG-14	07-AUG-14	R2911198
Tin (Sn)-Total	0.00061		0.00020	mg/L	07-AUG-14	07-AUG-14	R2911198
Titanium (Ti)-Total	<0.00050		0.00050	mg/L	07-AUG-14	07-AUG-14	R2911198
Tungsten (W)-Total	<0.00010		0.00010	mg/L	07-AUG-14	07-AUG-14	R2911198
Uranium (U)-Total	0.00058		0.00010	mg/L	07-AUG-14	07-AUG-14	R2911198
Vanadium (V)-Total	0.00031		0.00020	mg/L	07-AUG-14	07-AUG-14	R2911198
Zinc (Zn)-Total	0.0331		0.0020	mg/L	07-AUG-14	07-AUG-14	R2911198
Zirconium (Zr)-Total	<0.00040		0.00040	mg/L	07-AUG-14	07-AUG-14	R2911198
Nitrogen Total							
Nitrate as N by Ion Chromatography	<0.050		0.050	mg/L	07-AUG-14	07-AUG-14	R2899779
Nitrate-N	<0.071		0.071	mg/L	07-AUG-14	07-AUG-14	R2899779
Nitrate+Nitrite							
Nitrate and Nitrite as N							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

L1492105 CONTD....
PAGE 3 of 6
Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1492105-1 ILE DE CHENE							
Sampled By: Lulia Z on 24-JUL-14 @ 14:15							
Matrix: Water							
Nitrite as N by Ion Chromatography	<0.050		0.050	mg/L		25-JUL-14	R2899779
Total Kjeldahl Nitrogen	0.23		0.20	mg/L	29-JUL-14	30-JUL-14	R2902661
Total Kjeldahl Nitrogen							
Total Nitrogen Calculated							
Total Nitrogen	0.23		0.20	mg/L		30-JUL-14	
VOC routine							
Total Trihalomethanes (THMs)	<0.0010		0.0010	mg/L		05-AUG-14	
Total THMs							
VOC plus F1 by GCMS							
Acetone	0.155		0.020	mg/L		30-JUL-14	R2904551
Benzene	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
Bromodichloromethane	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
Bromoform	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
Bromomethane	<0.0010		0.0010	mg/L		30-JUL-14	R2904551
Carbon disulfide	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
Carbon Tetrachloride	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
Chlorobenzene	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
Chloroethane	<0.0010		0.0010	mg/L		30-JUL-14	R2904551
Chloroform	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
Chloromethane	<0.0010		0.0010	mg/L		30-JUL-14	R2904551
Dibromochloromethane	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
1,2-Dibromoethane	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
1,2-Dichlorobenzene	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
1,3-Dichlorobenzene	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
1,4-Dichlorobenzene	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
Dichlorodifluoromethane	<0.0010		0.0010	mg/L		30-JUL-14	R2904551
1,1-dichloroethane	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
1,2-Dichloroethane	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
1,1-dichloroethene	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
trans-1,2-Dichloroethene	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
Dichloromethane	<0.0050		0.0050	mg/L		30-JUL-14	R2904551
1,2-Dichloropropane	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
cis-1,3-Dichloropropane	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
trans-1,3-Dichloropropane	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
Ethylbenzene	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
2-Hexanone (Methyl butyl ketone)	<0.020		0.020	mg/L		30-JUL-14	R2904551
MEK	<0.020		0.020	mg/L		30-JUL-14	R2904551
MIBK	<0.020		0.020	mg/L		30-JUL-14	R2904551
MTBE	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
Styrene	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
1,1,1,2-Tetrachloroethane	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
1,1,2,2-Tetrachloroethane	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
Tetrachloroethene	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
Toluene	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
1,1,1-Trichloroethane	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
1,1,2-Trichloroethane	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
Trichloromethane	<0.0010		0.0010	mg/L		30-JUL-14	R2904551
Trichlorofluoromethane	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
Vinyl Chloride	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
M+P-Xylenes	<0.00050		0.00050	mg/L		30-JUL-14	R2904551
o-Xylene	<0.00050		0.00050	mg/L		30-JUL-14	R2904551

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

L1492105 CONTD....
 PAGE 4 of 6
 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1492105-1 ILE DE CHENE Sampled By: Lulu Z on 24-JUL-14 @ 14:15 Matrix: Water VOC plus F1 by GCMS Surrogate: 4-Bromofluorobenzene (SS) Surrogate: 1,4-Difluorobenzene (SS)	91.0 95.1		70-130 70-130	% %		30-JUL-14 30-JUL-14	R2904551 R2904551

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
DLM	Detection Limit Adjusted due to sample matrix effects.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description
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Method Reference**

BOD-WP	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B
The sample is incubated for 5 days at 20 degrees Celsius. Comparison of dissolved oxygen content at the beginning and end of incubation provides a measure of biochemical oxygen demand. If carbonaceous BOD is requested, TCMP is added to the sample to chemically inhibit nitrogenous oxygen demand. If soluble BOD is requested, the sample is filtered prior to analysis. Surface waters have a DL of 1 mg/L. Effluents are diluted according to their history and will have a sample DL of 6 mg/L or greater, depending on the dilutions used.			
COD-WP	Water	Chemical Oxygen Demand	APHA 5220 D

The Chemical Oxygen Demand (COD) test is used to estimate the amount of organic matter in the water. The sample is added to HACH brand COD tubes, which contain a premixed volume of reagents. The sample is then heated for two hours on the COD reactor with a strong oxidizing agent, potassium dichromate. The COD reagents also contain silver and mercury ions. Silver is used as a catalyst and mercury is used to complex chloride interference. Oxidizable organic compounds react, reducing the dichromate ion to green chromic ion.

For the 10 - 150 mg/L range the remaining Cr⁶⁺ is measured colorimetrically and a decrease in absorbance at 420 nm is proportional to the COD. For the 100 - 1500 mg/L range the amount of Cr³⁺ produced is measured colorimetrically and an increase in absorbance at 620 nm is proportional to the COD. Samples with concentrations > 1500 mg/L can be diluted into either linear range.

EC-WP	Water	Conductivity	APHA 2510B
Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.			
ETL-N-TOT-ANY-WP	Water	Total Nitrogen Calculated	Calculated
ETL-SAR-CALC-TOT-WP	Water	Sodium Adsorption Ratio	Calculation
MET-T-L-MS-WP	Water	Total Metals by ICP-MS	APHA 3030E/EPA 6020A-TL

This analysis involves preliminary sample treatment by hotblock acid digestion (APHA 3030E). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

N-TOTKJ-WP	Water	Total Kjeldahl Nitrogen	Quickchem method 10-107-06-2-E Lachat
Samples are digested with a sulphuric acid solution, cooled, diluted with water, and analyzed for ammonia. Total Kjeldahl nitrogen is the sum of free-ammonia and organic nitrogen compounds which are converted to ammonium sulphate through this digestion process. Analysis is performed by Flow Injection Analysis (FIA). The pH of the digested sample is raised to a known, basic pH by neutralization with a concentrated buffer solution. This neutralization converts the ammonium cation to ammonia. The ammonia produced is heated with salicylate and hypochlorite to produce blue colour which is proportional to the ammonia concentration.			

NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-WP	Water	Nitrite as N by Ion Chromatography	EPA 300.1 (Modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
NO3-IC-WP	Water	Nitrate as N by Ion Chromatography	EPA 300.1 (Modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.			
PH-WP	Water	pH	APHA 4500H

The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.

SOLIDS-TOTSUS-WP	Water	Total Suspended Solids	APHA 2540 D (modified)
Total suspended solids in aqueous matrices is determined gravimetrically after drying the residue at 103 105 C.			
THM-SUM-CALC-WP	Water	Total Trihalomethanes (THMs)	CALCULATION

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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Total Trihalomethanes (THMs) represents the sum of bromodichloromethane, bromoform, chlorodibromomethane and chloroform. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

VOC+F1-HSMS-WP	Water	VOC plus F1 by GCMS	EPA 8260C / EPA 5021A
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In this method samples are analyzed using a headspace autosampler interfaced to a dual column gas chromatograph with MS and Flame Ionization detectors.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s) but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory. UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Environmental Division



L1492105-COFC

Chain of Custody / Analytical Request Form
CHEMISTRY INFO: (204) 255 9739
MICRO INFO: (204) 255 9740 OR (204) 255 9737
WORK ORDER NO: L1492105

FOR LABORATORY USE ON
Sample Condition Upon Receipt:
 Frozen Cold Ambient Broken Leakage Incorrect Sample Container

LAB NO.:
DATE RECEIVED: 07/24/14
TIME RECEIVED: 3:40
BY: JC

Date Sampled: 240000 Time: 2:15 AM P.M. A.M.
Location: LEND CHENE
(Town, Community, City)

Date Required: _____
Submitter's Name Printed: LYCAZ
Sample Submitted By: _____

Community Code Number: _____

Rural Municipality/LC/CUVD: _____

SAMPLE TYPE
DRINKING WATER

- Untreated Well
- Treated Well
- Treated Municipal
- Non-Treated Municipal
- Meter-Surface-Raw
- Water-Surface-Treated
- PURPOSE OF TEST
- Private Real Estate Water Main

PLEASE PRINT & PRESS FIRMLY
NON-DRINKING WATER

- Sewage/Waste Water
- Lake/River
- Swimming Pool
- Whitl Pool
- Other

- Quote number must be provided to insure proper pricing.
- Failure to properly complete all portions of this form may delay analysis.
- ALS's liability limited to cost of analysis.

SERVICE REQUESTED
 REGULAR PRIORITY (50% SURCHARGE) EMERGENCY (100% SURCHARGE)

LAB NUMBER	SAMPLE IDENTIFICATION

Analyses required

ALS CUSTOMER #: _____ REPORT TO BE SENT TO _____
QUOTE #: Q41195

NAME: DANIEL BRISTVED
COMPANY: HD GRAPHICS
ADDRESS: Box 299
CITY/TOWN: LEND CHENE / PROV: MB
POSTAL CODE: R0A 0T0

PHONE: 204 978 4002
BY: MAIL FAX
PICKUP E-MAIL (FAX NUMBER)
cc art@hdgraphicsinc.com (EMAIL ADDRESS)

NAME: _____ / PROV: _____
ADDRESS: _____
CITY/TOWN: _____
POSTAL CODE: _____
PHONE: _____
BY: MAIL FAX (FAX NUMBER)
PICKUP E-MAIL (EMAIL ADDRESS)

BILLING ADDRESS SAME AS REPORT TO

NAME: _____
COMPANY: _____
ADDRESS: _____
CITY/TOWN: _____ / PROV: _____
POSTAL CODE: _____

PAYMENT PARTICULARS

INVOICE NEEDED / CLIENT'S P.O. NO. _____
 INTERAC
 CASH
 CHEQUE
 VISA / MASTERCARD
Subtotal \$ _____
G.S.T. \$ _____
Total \$ _____

SAMPLING INSTRUCTIONS ON REVERSE SIDE

Manitoba Technology Centre Ltd.
Part of the **ALS Laboratory Group**
12 - 1329 Niakwa Rd. E., Winnipeg, MB Canada R2J 3T4
Phone: +1 204 255 9720 Fax: +1 204 255 9721 www.alsglobal.com
A Campbell Brothers Limited Company

ENTERED IN LIMS BY: _____

POLYONE CORPORATION**MATERIAL SAFETY DATA SHEET****11008PFXPSW SLD EPIC PERFORMANCE WHITE**Version Number 1.2
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Print Date 3/20/2013**1. PRODUCT AND COMPANY IDENTIFICATION****POLYONE CORPORATION**
8155 Cobb Center Drive, Kennesaw, GA 30152Telephone : 1 (440) 930-1000 or 1 (866) POLYONE
Emergency telephone : **CHEMTREC 1-800-424-9300 (24hrs for spill, leak, fire, exposure
number or accident).**Product name : 11008PFXPSW SLD EPIC PERFORMANCE WHITE
Product code : FO20022401
Chemical Name : Mixture
CAS-No. : Mixture
Product Use : Industrial Applications**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Components	CAS-No.	Weight percent
Diphenyloxyde-4,4'-disulfohydrazide	80-51-3	1 - 5
Silica, amorphous	7631-86-9	1 - 5
Silica, amorphous, fumed, crystal-free	112945-52-5	1 - 5
Calcium carbonate	471-34-1	5 - 10
Titanium dioxide	13463-67-7	10 - 30

3. HAZARDS IDENTIFICATION**EMERGENCY OVERVIEW**

This mixture has not been evaluated as a whole for health effects. Information provided on health effects of this product is based on the individual components. However, some vapors or contaminants may be released upon heating and the end-user (fabricator) must take the necessary precautions (mechanical ventilation, respiratory protection, etc.) to protect employees from exposure. See sections 8 and 11 for special precautions.

POTENTIAL HEALTH EFFECTS**Routes of Exposure:** : Inhalation, Skin contact, Ingestion**Acute exposure**Inhalation : Inhalation of airborne droplets may cause irritation of the respiratory tract.
Ingestion : May be harmful if swallowed.
Eyes : May cause eye and skin irritation.
Skin : Experience shows no unusual dermatitis hazard from routine handling.

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Chronic exposure : Refer to Section 11 for Toxicological Information.

Medical Conditions : None known.

Aggravated by Exposure:

4. FIRST AID MEASURES

Inhalation : Move to fresh air in case of accidental inhalation of fumes from overheating or combustion. When symptoms persist or in all cases of doubt seek medical advice.

Ingestion : Do not induce vomiting without medical advice. When symptoms persist or in all cases of doubt seek medical advice.

Eyes : Rinse immediately with plenty of water for at least 15 minutes. If eye irritation persists, seek medical attention.

Skin : Wash off with soap and plenty of water. If skin irritation persists seek medical attention.

5. FIREFIGHTING MEASURES

Flash point : no data available

Flammable Limits

Upper explosion limit : no data available

Lower explosion limit : no data available

Auto-ignition temperature : Not applicable

Suitable extinguishing media : Carbon dioxide blanket, Water spray, Dry powder, Foam.

Special Fire Fighting Procedures : Fullface self-contained breathing apparatus (SCBA) used in positive pressure mode should be worn to prevent inhalation of airborne contaminants.

Unusual Fire/Explosion Hazards : May emit Hydrogen Chloride (HCl) or Carbon Monoxide (CO) under fire conditions. Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), other hazardous materials, and smoke are all possible.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions : Wear appropriate personal protection during cleanup, such as impervious gloves, boots and coveralls.

Environmental precautions : The product should not be allowed to enter drains, water courses or the soil. Should not be released into the environment.

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Package all material in

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MATERIAL SAFETY DATA SHEET

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appropriate container for disposal.

7. HANDLING AND STORAGE

- Handling : Heat only in areas with appropriate exhaust ventilation. Processing fume condensates may contain combustible or toxic residue. Periodically clean hoods, ducts, and other surfaces to minimize accumulation of these materials.
- Storage : Keep containers dry and tightly closed to avoid moisture absorption and contamination. Store in a cool dry place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Respiratory protection : No personal respiratory protective equipment normally required.
- Eye/Face Protection : Safety glasses with side-shields
- Hand protection : Protective gloves
- Skin and body protection : Long sleeved clothing
- Additional Protective Measures : Safety shoes
- General Hygiene Considerations : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
- Engineering measures : Heat only in areas with appropriate exhaust ventilation. Provide appropriate exhaust ventilation at machinery.

Exposure limit(s)

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Components	Value	Exposure time	Exposure type	List:
Calcium carbonate	5 mg/m3	PEL:	Respirable fraction.	OSHA Z1
	15 mg/m3	PEL:	Total dust.	OSHA Z1
	5 mg/m3	Time Weighted Average (TWA):	Respirable fraction.	OSHA Z1A
	15 mg/m3	Time Weighted Average (TWA):	Total dust.	OSHA Z1A
	10 mg/m3	Time Weighted Average (TWA):		MX OEL
	20 mg/m3	Short Term Exposure Limit (STEL):		MX OEL
	5 mg/m3	Recommended exposure limit (REL):	Respirable.	NIOSH
	10 mg/m3	Recommended exposure limit (REL):	Total	NIOSH
Diphenyloxide-4,4'-disulfohydrazide	0.1 mg/m3	Time Weighted Average (TWA):	Inhalable fraction.	ACGIH
Silica, amorphous	6 mg/m3	Recommended exposure limit (REL):		NIOSH
	0.8 mg/m3	Time Weighted Average (TWA):		Z3
	10 mg/m3	Time Weighted Average (TWA):	Inhalable particulate.	MX OEL
	3 mg/m3	Time Weighted Average (TWA):	Respirable dust.	MX OEL
	0.8 mg/m3	Time Weighted Average (TWA):		Z3
	10 mg/m3	Time Weighted Average (TWA):	Inhalable particulate.	MX OEL
Silica, amorphous, fumed, crystal-free	3 mg/m3	Time Weighted Average (TWA):	Respirable dust.	MX OEL
	10 mg/m3	Time Weighted Average (TWA):		
Titanium dioxide	10 mg/m3	Time Weighted Average (TWA):		ACGIH
	15 mg/m3	PEL:	Total dust.	OSHA Z1
	10 mg/m3	Time Weighted Average (TWA):	Total dust.	OSHA Z1A
	10 mg/m3	Time Weighted Average (TWA):	as Ti	MX OEL
	20 mg/m3	Short Term Exposure Limit (STEL):	as Ti	MX OEL

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	: liquid	Evaporation rate	: Not established
Appearance	: viscous, liquid	Specific Gravity	: Not determined
Colour	: WHITE	Bulk density	: Not applicable
Odour	: very faint	Vapour pressure	: Not determined
Melting point/range	: not applicable	Vapour density	: Not determined
Boiling Point:	: not applicable	pH	: Not applicable

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Water solubility : immiscible

10. STABILITY AND REACTIVITY

- Stability : The product is stable if stored and handled as prescribed.
- Hazardous Polymerization : Will not occur.
- Conditions to avoid : Keep away from oxidizing agents and open flame. To avoid thermal decomposition, do not overheat.
- Incompatible Materials : Incompatible with strong acids and oxidizing agents., Avoid contact with acetal homopolymers and acetal copolymers during processing.
- Hazardous decomposition products : Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), hydrogen chloride (HCl), other hazardous materials, and smoke are all possible. Prolonged heating may result in product degradation. As a general rule of thumb, degradation begins to occur after one hour at 177 °C (350 °F), after 10 minutes at 204 °C (400 °F), and within 5 minutes at 232 °C (450 °F).

11. TOXICOLOGICAL INFORMATION

This mixture has not been evaluated as a whole for health effects. Exposure effects listed are based on existing health data for the individual components which comprise the mixture.

Toxicity Overview

This product contains the following components which in their pure form have the following characteristics:

CAS-No.	Chemical Name	Effect	Target Organ
80-51-3	Diphenyloxide-4,4'-disulfohydrazide	Irritant	Eyes, Skin.
7631-86-9	Silica, amorphous	Irritant	Eyes, Respiratory system.
112945-52-5	Silica, amorphous, fumed, crystal-free	Irritant	Eyes, Respiratory system.
471-34-1	Calcium carbonate	Irritant	Eyes, Skin.
13463-67-7	Titanium dioxide	Systemic effects	Respiratory system.

LC50 / LD50

This product contains the following components which, in their pure form, have the following toxicity data:

CAS-No.	Chemical Name	Route	Value	Species
112945-52-5	Silica, amorphous, fumed, crystal-free	Oral LD50	3,160 mg/kg	rat
471-34-1	Calcium carbonate	Oral LD50Oral LD50Oral LD50	6,450 mg/kg6,450 mg/kg6,450 mg/kg	ratratmouse

Carcinogenicity

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This product contains the following components which, in their pure form, have the following carcinogenicity data:

CAS-No.	Chemical Name	OSHA	IARC	NTP
13463-67-7	Titanium dioxide	no	2B	no

IARC Carcinogen Classifications:

- 1 - The component is carcinogenic to humans.
- 2A - The component is probably carcinogenic to humans.
- 2B - The component is possibly carcinogenic to humans.

NTP Carcinogen Classifications:

- 1 - The component is known to be a human carcinogen.
- 2 - The component is reasonably anticipated to be a human carcinogen.

12. ECOLOGICAL INFORMATION

- Persistence and degradability : Not readily biodegradable.
- Environmental Toxicity : Environmental toxicity has not been established for this mixture as a whole.
- Bioaccumulation Potential : no data available
- Additional advice : no data available

13. DISPOSAL CONSIDERATIONS

- Product : Where possible recycling is preferred to disposal or incineration. The generator of waste material has the responsibility for proper waste classification, transportation and disposal in accordance with applicable federal, state/provincial and local regulations.
- Contaminated packaging : Recycling is preferred when possible. The generator of waste material has the responsibility for proper waste classification, transportation and disposal in accordance with applicable federal, state/provincial and local regulations.

14. TRANSPORT INFORMATION

- U.S. DOT Classification : Refer to specific regulation.
- ICAO/IATA : Refer to specific regulation.
- IMO/IMDG (maritime) : Refer to specific regulation.

15. REGULATORY INFORMATION

US Regulations:



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OSHA Status : Classified as hazardous based on components.

TSCA Status : All components of this product are listed on or exempt from the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302)

not applicable

California Proposition 65 : WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

SARA Title III Section 302 Extremely Hazardous Substance

Unless specific chemicals are identified under this section, this product is Not Applicable under this regulation

SARA Title III Section 313 Toxic Chemicals:

Unless specific chemicals are identified under this section, this product is Not Applicable under this regulation

Canadian Regulations:

National Pollutant Release Inventory (NPRI)

not applicable

WHMIS Classification : D2A

WHMIS Ingredient Disclosure List

CAS-No.
7631-86-9

DSL : All components of this product are on the Canadian Domestic Substances List (DSL) or are exempt.

National Inventories:

Australia AICS : Not determined

China IECS : Not determined

Europe EINECS : Listed

Japan ENCS : Not determined



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Korea KECI : Not determined

Philippines PICCS : Not determined

16. OTHER INFORMATION

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

POLYONE CORPORATION**MATERIAL SAFETY DATA SHEET****S9027LB SOLAR WHITE**Version Number 1.2
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Print Date 3/7/2013**1. PRODUCT AND COMPANY IDENTIFICATION****POLYONE CORPORATION**
8155 Cobb Center Drive, Kennesaw, GA 30152Telephone : 1 (440) 930-1000 or 1 (866) POLYONE
Emergency telephone : **CHEMTREC 1-800-424-9300 (24hrs for spill, leak, fire, exposure**
number : **or accident).**Product name : S9027LB SOLAR WHITE
Product code : FO00007126
Chemical Name : Mixture
CAS-No. : Mixture
Product Use : Industrial Applications**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Components	CAS-No.	Weight percent
Diphenyloxide-4,4'-disulfohydrazide	80-51-3	1 - 5
Silica, amorphous	7631-86-9	1 - 5
Silica, amorphous, precipitated and gel	112926-00-8	1 - 5
Calcium carbonate	1317-65-3	10 - 30
Titanium dioxide	13463-67-7	10 - 30

3. HAZARDS IDENTIFICATION**EMERGENCY OVERVIEW**

This mixture has not been evaluated as a whole for health effects. Information provided on health effects of this product is based on the individual components. However, some vapors or contaminants may be released upon heating and the end-user (fabricator) must take the necessary precautions (mechanical ventilation, respiratory protection, etc.) to protect employees from exposure. See sections 8 and 11 for special precautions.

POTENTIAL HEALTH EFFECTS**Routes of Exposure:** : Inhalation, Skin contact, Ingestion**Acute exposure**Inhalation : Inhalation of airborne droplets may cause irritation of the respiratory tract.
Ingestion : May be harmful if swallowed.
Eyes : May cause eye and skin irritation.
Skin : Experience shows no unusual dermatitis hazard from routine handling.

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Chronic exposure : Refer to Section 11 for Toxicological Information.

Medical Conditions : None known.

Aggravated by Exposure:

4. FIRST AID MEASURES

Inhalation : Move to fresh air in case of accidental inhalation of fumes from overheating or combustion. When symptoms persist or in all cases of doubt seek medical advice.

Ingestion : Do not induce vomiting without medical advice. When symptoms persist or in all cases of doubt seek medical advice.

Eyes : Rinse immediately with plenty of water for at least 15 minutes. If eye irritation persists, seek medical attention.

Skin : Wash off with soap and plenty of water. If skin irritation persists seek medical attention.

5. FIREFIGHTING MEASURES

Flash point : no data available

Flammable Limits

Upper explosion limit : no data available

Lower explosion limit : no data available

Auto-ignition temperature : Not applicable

Suitable extinguishing media : Carbon dioxide blanket, Water spray, Dry powder, Foam.

Special Fire Fighting Procedures : Fullface self-contained breathing apparatus (SCBA) used in positive pressure mode should be worn to prevent inhalation of airborne contaminants.

Unusual Fire/Explosion Hazards : May emit Hydrogen Chloride (HCl) or Carbon Monoxide (CO) under fire conditions. Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), other hazardous materials, and smoke are all possible.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions : Wear appropriate personal protection during cleanup, such as impervious gloves, boots and coveralls.

Environmental precautions : The product should not be allowed to enter drains, water courses or the soil. Should not be released into the environment.

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Package all material in

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appropriate container for disposal.

7. HANDLING AND STORAGE

- Handling : Heat only in areas with appropriate exhaust ventilation. Processing fume condensates may contain combustible or toxic residue. Periodically clean hoods, ducts, and other surfaces to minimize accumulation of these materials.
- Storage : Keep containers dry and tightly closed to avoid moisture absorption and contamination. Store in a cool dry place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Respiratory protection : No personal respiratory protective equipment normally required.
- Eye/Face Protection : Safety glasses with side-shields
- Hand protection : Protective gloves
- Skin and body protection : Long sleeved clothing
- Additional Protective Measures : Safety shoes
- General Hygiene Considerations : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
- Engineering measures : Heat only in areas with appropriate exhaust ventilation. Provide appropriate exhaust ventilation at machinery.

Exposure limit(s)

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Components	Value	Exposure time	Exposure type	List:
Calcium carbonate	5 mg/m3	PEL:	Respirable fraction.	OSHA Z1
	15 mg/m3	PEL:	Total dust.	OSHA Z1
	10 mg/m3	Time Weighted Average (TWA):		MX OEL
	20 mg/m3	Short Term Exposure Limit (STEL):		MX OEL
Diphenyloxide-4,4'-disulfohydrazide	0.1 mg/m3	Time Weighted Average (TWA):	Inhalable fraction.	ACGIH
Silica, amorphous	6 mg/m3	Recommended exposure limit (REL):		NIOSH
	0.8 mg/m3	Time Weighted Average (TWA):		Z3
	10 mg/m3	Time Weighted Average (TWA):	Inhalable particulate.	MX OEL
	3 mg/m3	Time Weighted Average (TWA):	Respirable dust.	MX OEL
Silica, amorphous, precipitated and gel	6 mg/m3	Time Weighted Average (TWA):		OSHA Z1A
	10 mg/m3	Time Weighted Average (TWA):		MX OEL
	0.8 mg/m3	Time Weighted Average (TWA):		Z3
	10 mg/m3	Time Weighted Average (TWA):		ACGIH
Titanium dioxide	15 mg/m3	PEL:	Total dust.	OSHA Z1
	10 mg/m3	Time Weighted Average (TWA):	Total dust.	OSHA Z1A
	10 mg/m3	Time Weighted Average (TWA):	as Ti	MX OEL
	20 mg/m3	Short Term Exposure Limit (STEL):	as Ti	MX OEL

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	: liquid	Evaporation rate	: Not established
Appearance	: viscous, liquid	Specific Gravity	: Not determined
Colour	: WHITE	Bulk density	: Not applicable
Odour	: very faint	Vapour pressure	: Not determined
Melting point/range	: not applicable	Vapour density	: Not determined
Boiling Point:	: not applicable	pH	: Not applicable
Water solubility	: immiscible		

10. STABILITY AND REACTIVITY

Stability	: The product is stable if stored and handled as prescribed.
Hazardous Polymerization	: Will not occur.

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- Conditions to avoid : Keep away from oxidizing agents and open flame. To avoid thermal decomposition, do not overheat.
- Incompatible Materials : Incompatible with strong acids and oxidizing agents., Avoid contact with acetal homopolymers and acetal copolymers during processing.
- Hazardous decomposition products : Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), hydrogen chloride (HCl), other hazardous materials, and smoke are all possible. Prolonged heating may result in product degradation. As a general rule of thumb, degradation begins to occur after one hour at 177 °C (350 °F), after 10 minutes at 204 °C (400 °F), and within 5 minutes at 232 °C (450 °F).

11. TOXICOLOGICAL INFORMATION

This mixture has not been evaluated as a whole for health effects. Exposure effects listed are based on existing health data for the individual components which comprise the mixture.

Toxicity Overview

This product contains the following components which in their pure form have the following characteristics:

CAS-No.	Chemical Name	Effect	Target Organ
80-51-3	Diphenyloxide-4,4'-disulfohydrazide	Irritant	Eyes, Skin.
7631-86-9	Silica, amorphous	Irritant	Eyes, Respiratory system.
112926-00-8	Silica, amorphous, precipitated and gel	Irritant	Respiratory system, Eyes.
1317-65-3	Calcium carbonate	Irritant	Eyes, Skin.
		Systemic effects	Eyes, Skin, Respiratory system.
13463-67-7	Titanium dioxide	Systemic effects	Respiratory system.

Carcinogenicity

This product contains the following components which, in their pure form, have the following carcinogenicity data:

CAS-No.	Chemical Name	OSHA	IARC	NTP
13463-67-7	Titanium dioxide	no	2B	no

IARC Carcinogen Classifications:

- 1 - The component is carcinogenic to humans.
- 2A - The component is probably carcinogenic to humans.
- 2B - The component is possibly carcinogenic to humans.

NTP Carcinogen Classifications:

- 1 - The component is known to be a human carcinogen.
- 2 - The component is reasonably anticipated to be a human carcinogen.

12. ECOLOGICAL INFORMATION

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Persistence and degradability : Not readily biodegradable.
Environmental Toxicity : Environmental toxicity has not been established for this mixture as a whole.
Bioaccumulation Potential : no data available
Additional advice : no data available

13. DISPOSAL CONSIDERATIONS

Product : Where possible recycling is preferred to disposal or incineration. The generator of waste material has the responsibility for proper waste classification, transportation and disposal in accordance with applicable federal, state/provincial and local regulations.
Contaminated packaging : Recycling is preferred when possible. The generator of waste material has the responsibility for proper waste classification, transportation and disposal in accordance with applicable federal, state/provincial and local regulations.

14. TRANSPORT INFORMATION

U.S. DOT Classification : Refer to specific regulation.
ICAO/IATA : Refer to specific regulation.
IMO/IMDG (maritime) : Refer to specific regulation.

15. REGULATORY INFORMATION

US Regulations:

OSHA Status : Classified as hazardous based on components.
TSCA Status : All components of this product are listed on or exempt from the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302)

not applicable

California Proposition 65 : WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

SARA Title III Section 302 Extremely Hazardous Substance

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Unless specific chemicals are identified under this section, this product is Not Applicable under this regulation

SARA Title III Section 313 Toxic Chemicals:

Unless specific chemicals are identified under this section, this product is Not Applicable under this regulation

Canadian Regulations:

National Pollutant Release Inventory (NPRI)

Chemical Name	CAS-No.	Weight percent	NPRI ID#
Bis (2-ethylhexyl) adipate	103-23-1	0.10 - 1.00	

WHMIS Classification : D2A

WHMIS Ingredient Disclosure List

CAS-No.
103-23-1
7631-86-9

DSL : All components of this product are on the Canadian Domestic Substances List (DSL) or are exempt.

National Inventories:

- Australia AICS : Not determined
- China IECS : Not determined
- Europe EINECS : Listed
- Japan ENCS : Not determined
- Korea KECI : Not determined
- Philippines PICCS : Not determined

16. OTHER INFORMATION

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.



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POLYONE CORPORATION**MATERIAL SAFETY DATA SHEET****11480HT BRIGHT TIGER**Version Number 1.8
Revision Date 03/08/2013Page 1 of 8
Print Date 3/13/2013**1. PRODUCT AND COMPANY IDENTIFICATION****POLYONE CORPORATION**
8155 Cobb Center Drive, Kennesaw, GA 30152

Telephone : 1 (440) 930-1000 or 1 (866) POLYONE
Emergency telephone : CHEMTREC 1-800-424-9300 (24hrs for spill, leak, fire, exposure
number or accident).

Product name : 11480HT BRIGHT TIGER
Product code : FO00000550
Chemical Name : Mixture
CAS-No. : Mixture
Product Use : Industrial Applications

2. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight percent
Diphenyloxide-4,4'-disulfohydrazide	80-51-3	1 - 5
Silica, amorphous	7631-86-9	1 - 5
Silica, amorphous, fumed, crystal-free	112945-52-5	1 - 5
Talc	14807-96-6	5 - 10
Titanium dioxide	13463-67-7	30 - 60

3. HAZARDS IDENTIFICATION**EMERGENCY OVERVIEW**

This mixture has not been evaluated as a whole for health effects. Information provided on health effects of this product is based on the individual components. However, some vapors or contaminants may be released upon heating and the end-user (fabricator) must take the necessary precautions (mechanical ventilation, respiratory protection, etc.) to protect employees from exposure. See sections 8 and 11 for special precautions.

POTENTIAL HEALTH EFFECTS**Routes of Exposure:** : Inhalation, Skin contact, Ingestion**Acute exposure**

Inhalation : Inhalation of airborne droplets may cause irritation of the respiratory tract.
Ingestion : May be harmful if swallowed.
Eyes : May cause eye and skin irritation.
Skin : Experience shows no unusual dermatitis hazard from routine handling.

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Chronic exposure : Refer to Section 11 for Toxicological Information.

Medical Conditions : None known.

Aggravated by Exposure:

4. FIRST AID MEASURES

Inhalation : Move to fresh air in case of accidental inhalation of fumes from overheating or combustion. When symptoms persist or in all cases of doubt seek medical advice.

Ingestion : Do not induce vomiting without medical advice. When symptoms persist or in all cases of doubt seek medical advice.

Eyes : Rinse immediately with plenty of water for at least 15 minutes. If eye irritation persists, seek medical attention.

Skin : Wash off with soap and plenty of water. If skin irritation persists seek medical attention.

5. FIREFIGHTING MEASURES

Flash point : no data available

Flammable Limits

Upper explosion limit : no data available

Lower explosion limit : no data available

Auto-ignition temperature : Not applicable

Suitable extinguishing media : Carbon dioxide blanket, Water spray, Dry powder, Foam.

Special Fire Fighting Procedures : Fullface self-contained breathing apparatus (SCBA) used in positive pressure mode should be worn to prevent inhalation of airborne contaminants.

Unusual Fire/Explosion Hazards : May emit Hydrogen Chloride (HCl) or Carbon Monoxide (CO) under fire conditions. Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), other hazardous materials, and smoke are all possible.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions : Wear appropriate personal protection during cleanup, such as impervious gloves, boots and coveralls.

Environmental precautions : The product should not be allowed to enter drains, water courses or the soil. Should not be released into the environment.

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Package all material in

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appropriate container for disposal.

7. HANDLING AND STORAGE

- Handling : Heat only in areas with appropriate exhaust ventilation. Processing fume condensates may contain combustible or toxic residue. Periodically clean hoods, ducts, and other surfaces to minimize accumulation of these materials.
- Storage : Keep containers dry and tightly closed to avoid moisture absorption and contamination. Store in a cool dry place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Respiratory protection : No personal respiratory protective equipment normally required.
- Eye/Face Protection : Safety glasses with side-shields
- Hand protection : Protective gloves
- Skin and body protection : Long sleeved clothing
- Additional Protective Measures : Safety shoes
- General Hygiene Considerations : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
- Engineering measures : Heat only in areas with appropriate exhaust ventilation. Provide appropriate exhaust ventilation at machinery.

Exposure limit(s)

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Components	Value	Exposure time	Exposure type	List:
Diphenyloxide-4,4'-disulfohydrazide	0.1 mg/m3	Time Weighted Average (TWA):	Inhalable fraction.	ACGIH
Silica, amorphous	6 mg/m3	Recommended exposure limit (REL):		NIOSH
	0.8 mg/m3	Time Weighted Average (TWA):		Z3
	10 mg/m3	Time Weighted Average (TWA):	Inhalable particulate.	MX OEL
	3 mg/m3	Time Weighted Average (TWA):	Respirable dust.	MX OEL
Silica, amorphous, fumed, crystal-free	0.8 mg/m3	Time Weighted Average (TWA):		Z3
	10 mg/m3	Time Weighted Average (TWA):	Inhalable particulate.	MX OEL
	3 mg/m3	Time Weighted Average (TWA):	Respirable dust.	MX OEL
Talc	2 mg/m3	Time Weighted Average (TWA):	Respirable fraction.	ACGIH
	2 mg/m3	Recommended exposure limit (REL):	Respirable.	NIOSH
	2 mg/m3	Time Weighted Average (TWA):	Respirable dust.	OSHA Z1A
	0.1 mg/m3	Time Weighted Average (TWA):	Respirable.	Z3
	0.3 mg/m3	Time Weighted Average (TWA):	Total dust.	Z3
Titanium dioxide	10 mg/m3	Time Weighted Average (TWA):		ACGIH
	15 mg/m3	PEL:	Total dust.	OSHA Z1
	10 mg/m3	Time Weighted Average (TWA):	Total dust.	OSHA Z1A
	10 mg/m3	Time Weighted Average (TWA):	as Ti	MX OEL
	20 mg/m3	Short Term Exposure Limit (STEL):	as Ti	MX OEL

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	: liquid	Evaporation rate	: Not established
Appearance	: viscous, liquid	Specific Gravity	: Not determined
Colour	: WHITE	Bulk density	: Not applicable
Odour	: very faint	Vapour pressure	: Not determined
Melting point/range	: not applicable	Vapour density	: Not determined
Boiling Point:	: not applicable	pH	: Not applicable
Water solubility	: immiscible		

10. STABILITY AND REACTIVITY

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- Stability : The product is stable if stored and handled as prescribed.
- Hazardous Polymerization : Will not occur.
- Conditions to avoid : Keep away from oxidizing agents and open flame. To avoid thermal decomposition, do not overheat.
- Incompatible Materials : Incompatible with strong acids and oxidizing agents., Avoid contact with acetal homopolymers and acetal copolymers during processing.
- Hazardous decomposition products : Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), hydrogen chloride (HCl), other hazardous materials, and smoke are all possible. Prolonged heating may result in product degradation. As a general rule of thumb, degradation begins to occur after one hour at 177 °C (350 °F), after 10 minutes at 204 °C (400 °F), and within 5 minutes at 232 °C (450 °F).

11. TOXICOLOGICAL INFORMATION

This mixture has not been evaluated as a whole for health effects. Exposure effects listed are based on existing health data for the individual components which comprise the mixture.

Toxicity Overview

This product contains the following components which in their pure form have the following characteristics:

CAS-No.	Chemical Name	Effect	Target Organ
80-51-3	Diphenyloxide-4,4'-disulfohydrazide	Irritant	Eyes, Skin.
7631-86-9	Silica, amorphous	Irritant	Eyes, Respiratory system.
112945-52-5	Silica, amorphous, fumed, crystal-free	Irritant	Eyes, Respiratory system.
14807-96-6	Talc	Systemic effects	Eyes, Respiratory system, Skin.
13463-67-7	Titanium dioxide	Systemic effects	Respiratory system.

LC50 / LD50

This product contains the following components which, in their pure form, have the following toxicity data:

CAS-No.	Chemical Name	Route	Value	Species
112945-52-5	Silica, amorphous, fumed, crystal-free	Oral LD50	3,160 mg/kg	rat

Carcinogenicity

This product contains the following components which, in their pure form, have the following carcinogenicity data:

CAS-No.	Chemical Name	OSHA	IARC	NTP
14807-96-6	Talc	no	2B	no
13463-67-7	Titanium dioxide	no	2B	no

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IARC Carcinogen Classifications:

- 1 - The component is carcinogenic to humans.
- 2A - The component is probably carcinogenic to humans.
- 2B - The component is possibly carcinogenic to humans.

NTP Carcinogen Classifications:

- 1 - The component is known to be a human carcinogen.
- 2 - The component is reasonably anticipated to be a human carcinogen.

12. ECOLOGICAL INFORMATION

- Persistence and degradability : Not readily biodegradable.
- Environmental Toxicity : Environmental toxicity has not been established for this mixture as a whole.
- Bioaccumulation Potential : no data available
- Additional advice : no data available

13. DISPOSAL CONSIDERATIONS

- Product : Where possible recycling is preferred to disposal or incineration. The generator of waste material has the responsibility for proper waste classification, transportation and disposal in accordance with applicable federal, state/provincial and local regulations.
- Contaminated packaging : Recycling is preferred when possible. The generator of waste material has the responsibility for proper waste classification, transportation and disposal in accordance with applicable federal, state/provincial and local regulations.

14. TRANSPORT INFORMATION

- U.S. DOT Classification : This product is not regulated for transport.
- ICAO/IATA : This product is not regulated for transport.
- IMO/IMDG (maritime) : This product is not regulated for transport.

15. REGULATORY INFORMATION

US Regulations:

- OSHA Status : Classified as hazardous based on components.
- TSCA Status : All components of this product are listed on or exempt from the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302)

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not applicable

California Proposition 65 : WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

SARA Title III Section 302 Extremely Hazardous Substance

Unless specific chemicals are identified under this section, this product is Not Applicable under this regulation

SARA Title III Section 313 Toxic Chemicals:

Unless specific chemicals are identified under this section, this product is Not Applicable under this regulation

Canadian Regulations:

National Pollutant Release Inventory (NPRI)

not applicable

WHMIS Classification : D2A

WHMIS Ingredient Disclosure List

CAS-No.
7631-86-9

DSL : All of the components of this product are listed on the Canadian Inventories or are exempt. However, at least one component of this product is on the Canadian Non-Domestic Substances List (NDSL). Quantity use in Canada is restricted by regulations.

National Inventories:

Australia AICS : Not determined

China IECS : Not determined

Europe EINECS : Listed

Japan ENCS : Not determined

Korea KECI : Not determined

Philippines PICCS : Not determined



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16. OTHER INFORMATION

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.



Going Green with Saatichem

Saatichem is committed to producing environmentally friendly products - without Greenwashing.

We avoid any use of toxic chemicals such as NMP & methylene chloride, HAPS, phthalates and heavy metals, to ensure RoHS compliance.

Our products are biodegradable and drain-safe when used according to instructions published in the Saatichem product Technical Data Sheets.

Renewable ingredients are used whenever possible and high efficiency formulas are designed to minimize waste. Many of our products are offered as concentrates, or in bulk, to minimize post-consumer packaging waste and whenever possible we utilize packaging with a high-recycled content.

Our cleaning and reclaiming chemicals in particular are designed to be operator friendly, VOC-compliant and with minimal impact on the environment.

We achieve this through the use of high-efficiency formulas and replacement of 100% solvent-based products with water-based alternatives.

Natural ingredients feature heavily in our formulas. We utilize solvents and surfactants derived from renewable resources including corn, soy, coconut, palm and citrus as alternatives to derivatives of petroleum, a depleting resource.

Green Parameters: Where Does Saatichem Fit In?

We offer

- Non-hazardous/less-hazardous product alternatives
- Products with easy biodegradability & that are drain-safe
- Products made with renewable ingredients
- Low VOC product alternatives
- Concentrates & bulk packaged product to minimize landfill waste
- Products with low use level & waste through high efficiency
- No toxics, NMP, methylene chloride, HAPS, phthalates or heavy metals used in any product

Some Green Product Highlights Include:

Direct Prep 2
mesh prep & degreaser made with 100% renewable ingredients.

Remove ER2
biodegradable stencil remover concentrate with high efficiency for reduced use level.

Remove IR3
renewable soy-based ink remover with close to zero VOC's.

Remove IR4
water-based ink remover with low organic content.

Remove HR5
powerful and fast acting haze remover that is user friendly, easily biodegradable and made with 100% renewable ingredients.

Remove HR6
stain remover & degreaser that is non-caustic with a pleasant cherry scent.





MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: **TEXTIL PV**
General Use: Liquid emulsion for producing screen printing stencils.
Manufacturer: SAATI
201 Fairview St. Ext. Fountain Inn, SC. 29644
Tel: 1-864-601-8300
Fax: 1-864-862-0089
Hours: Monday-Friday 8:30am – 5:00pm
www.saatiamericas.com
Emergency Telephone Number: INFOTRAC 800-535-5053 or 352-323-3500, 24-hours everyday

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	Percentage	CAS Number	OSHA PEL	ACGIH TLV
None				

*** The specific chemical identity and/or weight percent is being withheld as a trade secret

3. HAZARDS IDENTIFICATION

No evidence of health danger has been reported.
Medical conditions generally aggravated by exposure: Dermatitis.
Symptomatic routes of exposure:
Skin Contact: Prolonged exposure may cause slight irritation.
Eye Contact: Direct exposure may cause slight irritation.
Inhalation: N/A
Ingestion: Large quantities may cause gastro-intestinal irritation.

4. FIRST AID MEASURES

No episodes of damage to health ascribable to the product have been reported. Nevertheless, observance of good industrial hygiene is recommended.
Eyes: Irrigate with water for 15 minutes.
Skin: Wash with soap and water.
Inhalation: N/A
Ingestion: Drink plenty of water, seek medical attention and treat symptomatically.

5. FIRE FIGHTING MEASURES

Flash Point / Method: N/A
Flammable Limits: N/A
Extinguishing Media: Water - to cool fire exposed containers.
Autoignition Temperature: N/A
Protection of Fire Firefighter: Ordinary fire protection equipment.
Fire & Explosion Hazards: None, product will not burn.

6. ACCIDENTAL RELEASE MEASURES

Small spill: Dilute with large amounts of water and flush to waste
Large spill: Absorb with sand and transfer to proper disposal site.

7. HANDLING AND STORAGE

Store in dry, cool conditions and in the original containers. Gloves and goggles may be worn as a practice of good industrial hygiene.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Follow the good industrial hygiene practices adopting suitable individual protective measures such as gloves and goggles. Do not eat or smoke while handling the product. Wash hands before eating and at the end of the work shift.
Respiratory Protection: Not required.

Skin Protection: PVC/ Latex recommended.
Eye Protection: Goggles/ safety glasses recommended.
Other: Apron recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Viscous liquid.
Appearance: Red-Pink
Odor: slight
Vapor Pressure: N/A
Specific Gravity: 1.050 kg/L @ 20°C
Solubility in Water: Miscible in water
pH: 4.0-6.0
Vapor Density: < 1.0
Evaporation Rate: < 1.0
Boiling Point: >100 °C
Melting Point: 0°C
Percent Volatiles: >50
Volatile Organic Compounds: 0 g/L

10. STABILITY AND REACTIVITY

Stability: This product is stable in normal conditions of use and storage.
Conditions to avoid: Heat, sunlight.
Materials to avoid: Oxidizing agents.
Hazardous decomposition products: None when used under normal conditions. In the event of thermal decomposition or fire, vapors potentially dangerous to health may be released.
Hazardous polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

According to currently available data, this product has not produced health damages. However, it should be handled according to good industrial practices.
Carcinogenicity: N/A
Acute Toxicity Data: LD₅₀: N/A; LC₅₀ : N/A

12. ECOLOGICAL INFORMATION

No data are available on the adverse effects of this material on the environment.

13. DISPOSAL CONSIDERATIONS

Dispose of in accordance with all current local, state, and federal regulations.
Textil PV is biodegradable and drain-safe.

14. TRANSPORT INFORMATION

US DOT: Not Regulated
Transport Canada: Not Regulated
IATA: Not Regulated
IMO: Not Regulated
ADR: Not Regulated
RID: Not Regulated
IMDG: Not Regulated

15. REGULATORY INFORMATION

US Federal Regulations

TSCA: All components of this product are listed on the TSCA Inventory.
CERCLA (40 CFR 117.302): This material contains no Reportable Quantity (RQ) Substances.
SARA Title III (40 CFR 372)
Section 311/312 Hazard Categories: None.
Section 313 Reportable Ingredients: None.

US State Regulations

Pennsylvania Right-To-Know Act reportable components: None.
California Proposition 65 reportable components: None.

Canadian Regulations

DSL: All components of this product are listed on the Domestic Substances List.
Danger labeling under regulations 67/548/CEE and 1999/45/CE and following amendments and adjustments.

Workers exposed to this chemical agent do not need to undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/CE regulation is respected.

16. OTHER INFORMATION

HMIS Rating: Health-0 , Fire-0 , Reactivity-0 ,



Personal Protection-B

MSDS prepared by: Kathy Tylka, Regulatory Affairs Coordinator

Revision Date/Revision History: August 4, 2003

April 22, 2009

January 17, 2012– Section 1: new address

Note for users:

The information contained in the present sheet is based on our knowledge, on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product. This document must not be regarded as a guarantee on any specific product property. The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.



MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: REMOVE PW2 (44548)
General Use: Removes ink from screen-printing screens
Manufacturer: SAATI
 201 Fairview St. Ext. Fountain Inn, SC. 29644
 Tel: 1-864-601-8300
 Fax: 1-864-862-0089
 Hours: Monday-Friday 8:30am – 5:00pm
 www.saatiamericas.com
Emergency Telephone Number: INFOTRAC 800-535-5053 or 352-323-3500, 24-hours everyday

2. COMPOSITION/INFORMATION ON INGREDIENTS

Components	Wt % Less Than	CAS Number	OSHA PEL	ACGIH TLV
Aliphatic Petroleum Solvent	45.0	64742-47-8	100ppm	100ppm
Glycol Ether	35.0	34590-94-8	100ppm/ 150ppm	100ppm/ 150ppm
Glycol Ether	10.0	107-98-2	100ppm/ 150ppm	100ppm/ 150ppm
Terpene Solvent	10.0	5989-27-5	Not Established	Not Established
Glycol Ether	10.0	112-34-6	Not Established	Not Established

- Classified as Combustible Liquid Class II (OSHA)

3. HAZARDS IDENTIFICATION

Emergency Overview: Clear to amber liquid with mild citrus odor. COMBUSTIBLE LIQUID—Causes eye, skin, and respiratory tract irritation. May be harmful if swallowed. Contains material that may cause damage to eyes, respiratory tract, and central nervous system.

Potential Health Effects:

Eye: Causes moderate to severe eye irritation and possible corneal injury.

Skin: Causes skin irritation.

Ingestion: Presumed to be slightly toxic if swallowed.

Inhalation: May cause respiratory tract irritation and high concentrations may produce central nervous system depression.

Chronic Effects: May cause kidneys and/ or liver damage. Symptoms of Chronic Overexposure include memory loss, loss of coordination and intellectual ability.

Carcinogenicity: Not found to be a carcinogen

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Seek medical attention immediately.

Skin: Wash affected area with soap and water. Seek medical attention if irritation persists.

Ingestion: Dilute with water or milk unless the victim is unconscious. Do not induce vomiting to prevent aspiration into the lungs. Get medical attention immediately.

Inhalation: Remove to fresh air. Provide oxygen if breathing is difficult. Get medical attention if irritation persists.

5. FIRE FIGHTING MEASURES

Flash Point / Method: 108F (42.2C) TCC

Flammable Limits: Not Applicable

Extinguishing Media: Water fog, dry chemical, foam or carbon dioxide

Autoignition Temperature: Not Applicable

Protection of Fire Firefighter: Wear full protective equipment and self-contained, positive pressure breathing apparatus.

Fire & Explosion Hazards: WARNING: Combustible; containers exposed to intense heat and flames should be cooled with water to prevent vapor pressure from building up and rupturing the container.

6. ACCIDENTAL RELEASE MEASURES

Spills: Contain spilled material. Absorb with inert material (e.g., clay, dry sand or earth) and transfer to secure containers. Flush area with water to minimize residue.

7. HANDLING AND STORAGE

Store in a cool and dry area. Segregate from oxidizers and hazardous chemicals. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Good general ventilation should be sufficient to control airborne levels. At least 10 air changes per hour are recommended

Respiratory Protection: Under normal use conditions respirator is not required.

If exposure levels exceed the PEL/TLV, use NIOSH-approved respirator with an organic vapor filter.

Skin Protection: Neoprene gloves

Eye Protection: Safety glasses and/or face shield. Contact lenses should not be worn.

Other Protective clothing: Protective apron

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: liquid

Appearance: clear to amber liquid

Odor: slight citrus odor

pH: 6.0 – 8.0

Vapor Pressure: 1.2 mmHg @20C

Specific Gravity: 0.8691 @ 20C

Solubility in Water: Negligible

Vapor Density: (AIR=1) >1

Evaporation Rate: (ETHER = 1) <1

Boiling Point: 248 F

Melting Point: Not Applicable

Percent Solids: Not Applicable

VOC's: 7.2383 lbs/gal; 867 g/L

10. STABILITY AND REACTIVITY

Stability: Stable

Conditions to avoid: Sparks, flames, and other sources of heat

Materials to avoid: Strong oxidizing agents

Hazardous decomposition products: Carbon oxides and unidentified organic compounds

Hazardous polymerization: will not occur

11. TOXICOLOGICAL INFORMATION

Carcinogenicity: None Known

Acute Toxicity Data: None known

12. ECOLOGICAL INFORMATION

No data are available on the adverse effects of this material on the environment.

13. DISPOSAL CONSIDERATIONS

Dispose of in accordance with all current local, state, and federal regulations.

14. TRANSPORT INFORMATION

US DOT: Flammable Liquid, n.o.s, (terpene solvent), UN1993, 3, PG III.

Transport Canada: Flammable Liquid, n.o.s, (terpene solvent), UN1993, 3, PG III.

IMO: Flammable Liquid, n.o.s, (naphtha solvents, dipropylene glycol methyl ether), UN1993, 3, III

15. REGULATORY INFORMATION

US Federal Regulations

TSCA: All components of this product are listed on the TSCA Inventory.

CERCLA (40 CFR 117.302): This material contains no Reportable Quantity (RQ) Substances.

SARA Title III (40 CFR 372)

Section 311/312 Hazard Categories: None

Section 313 Reportable Ingredients: Diethylene glycol butyl ether (CAS# 112-34-5) 8.00WT%

US State Regulations

Pennsylvania Right-To-Know Act reportable components: CAS# 34590-94-8

Remove PW2

Revision Date: January 18, 2012

California Proposition 65 reportable components: None

Canadian Regulations

DSL: All components of this product are listed on the Domestic Substances List.

16. OTHER INFORMATION

HMIS III: Health-1, Fire-2 , Physical Hazard-0 ,



Personal Protection- B

MSDS prepared by: Kathy Tylka, Regulatory Affairs Coordinator

Revision Date/Revision History: February 12, 2010
October 21, 2010 – Section 14, IMO
January 18, 2012 – Section 1: new address

Note for users:

The information contained in the present sheet is based on our knowledge, on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product. This document must not be regarded as a guarantee on any specific product property. The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.



MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: REMOVE ER10
General Use: Removes screen-printing stencils from fabric
Manufacturer: SAATI
201 Fairview St. Ext. Fountain Inn, SC. 29644
Tel: 1-864-601-8300
Fax: 1-864-862-0089
Hours: Monday-Friday 8:30am – 5:00pm
www.saatiamericas.com
Emergency Telephone Number: INFOTRAC 800-535-5053 or 352-323-3500, 24-hours everyday

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	Percentage	CAS Number	OSHA PEL	ACGIH TLV
Periodic Acid	50	10450-60-9	Not Determined	Not Determined

*** The specific chemical identity and/or weight percent is being withheld as a trade secret

3. HAZARDS IDENTIFICATION

Emergency Overview

Clear, colorless liquid with slight odor. **CAUTION— Oxidizer.** Contact with combustible material may cause fire.

Corrosive. Causes burns

Potential Health Effects

Eye: Direct contact will cause irritation and possibly permanent corneal damage.

Skin: Causes burns.

Ingestion: May be harmful if swallowed, possible burns and/ or perforation of the digestive tract.

Inhalation: Vapor may cause irritation and destruction to the mucous membranes of the respiratory tract.

Chronic Effects/Carcinogenicity: None known.

4. FIRST AID MEASURES

Eyes: Immediately flush with water at least 15 minutes. Get medical attention immediately.

Skin: Flush with large amounts of water. Get medical attention if irritation persists.

Ingestion: Do not induce vomiting. Get medical attention immediately.

Inhalation: Remove to fresh air. Get medical attention if breathing difficulties persists.

5. FIRE FIGHTING MEASURES

Flash Point / Method: Not applicable

Flammable Limits: Not available

Extinguishing Media: Water spray.

Autoignition Temperature: Not available

Protection of Fire Firefighter: Wear full protective equipment and self-contained breathing apparatus.

Fire & Explosion Hazards: Non-flammable and not an explosion hazard, but it is an oxidizing agent. Emits toxic fumes under fire conditions.

6. ACCIDENTAL RELEASE MEASURES

Small spill: Flush to waste with large quantities of water. Mop with water soaked towels, dry paper towels may smolder and ignite.

Large spill: Absorb spill with inert material (e.g., dry sand or earth). Flush area with water to minimize residue.

7. HANDLING AND STORAGE

Store in a cool and dry area. Segregate from other hazardous chemicals. Avoid contact with eyes, skin, and clothing. Avoid breathing mist. Wash thoroughly after handling. Keep from freezing.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Good general ventilation should be sufficient to control airborne levels.

Respiratory Protection: Wear OSHA/MSHA approved full or half face pieces (with chemical goggles) respiratory protective equipment for routine work purposes when air concentration exceed the permissible exposure limit.

Respiratory protection is not required when product is used in the diluted form, 1:80 by volume.

Skin Protection: Neoprene gloves (concentrated and diluted form)

Eye Protection: Safety goggles (concentrated form)
Safety glasses (when used in diluted form 1:80)

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid

Appearance: Clear, colorless

Odor: Slight

Vapor Pressure: as water

Specific Gravity: 1.58

Solubility in Water: Complete

pH: <2.0

Vapor Density: 7.9

Evaporation Rate: <1 (butyl acetate=1)

Boiling Point: Not available

Melting Point: 252°F (122°C)

Percent Volatiles: 50%

Volatile Organic Compounds: 0 g/L

10. STABILITY AND REACTIVITY

Stability/Conditions to avoid: Stable

Materials to avoid: Reducing agents, finely powdered metals, strong bases, dimethyl sulfoxide, flammables

Conditions to avoid: heat, direct sunlight

Hazardous decomposition products: None under normal conditions. Iodine/ oxides of iodine are possible in extreme heat.

Hazardous polymerization: Will not occur

11. TOXICOLOGICAL INFORMATION

Not found to be a carcinogen

Acute Toxicity Data: LD₅₀, LC₅₀ Not Determined

12. ECOLOGICAL INFORMATION

No data are available on the adverse effects of this material on the environment.

13. DISPOSAL CONSIDERATIONS

Dispose of in accordance with all current local, state, and federal regulations.

14. TRANSPORT INFORMATION

US DOT: Corrosive liquid, oxidizing n.o.s. (Periodic Acid Solution), 8 (5.1), UN3093, PG II

Transport Canada: Corrosive liquid, oxidizing n.o.s. (Periodic Acid Solution), 8 (5.1), UN3093, PG II

IATA: Corrosive liquid, oxidizing n.o.s. (Periodic Acid Solution), 8 (5.1), UN3093, PG II

IMO: Corrosive liquid, oxidizing n.o.s. (Periodic Acid Solution), 8 (5.1), UN3093, PG II

15. REGULATORY INFORMATION

US Federal Regulations

TSCA: All components of this product are listed on the TSCA Inventory.

CERCLA (40 CFR 117.302): This material contains no Reportable Quantity (RQ) Substances.

SARA Title III (40 CFR 372)

Section 311/312 Hazard Categories: None

Section 313 Reportable Ingredients: None

US State Regulations

Pennsylvania Right-To-Know Act reportable components: None.

California Proposition 65 reportable components: None.

Canadian Regulations

DSL: All components of this product are listed on the Domestic Substances List.

16. OTHER INFORMATION

HMIS III Rating: Health-3, Fire-0, Physical Hazard -1,

Remove ER10

Revision Date: January 17, 2012

Personal Protection- X (when handled in concentrated form)



Personal Protection – B (when used diluted 1:80)



MSDS prepared by: Kathy Tylka, Regulatory Affairs Coordinator

Revision Date/Revision History: April 6, 2010 – sections 8 and 16

January 17, 2012– Section 1: new address

Note for users:

The information contained in the present sheet is based on our knowledge, on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product. This document must not be regarded as a guarantee on any specific product property. The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.



MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: **GRAFIC HU**
General Use: Liquid emulsion for producing screen-printing stencils.
Manufacturer: SAATI
201 Fairview St. Ext. Fountain Inn, SC. 29644
Tel: 1-864-601-8300
Fax: 1-864-862-0089
Hours: Monday-Friday 8:30am – 5:00pm
www.saatiamericas.com
Emergency Telephone Number: INFOTRAC 800-535-5053 or 352-323-3500, 24-hours everyday

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	Percentage	CAS Number	OSHA PEL	ACGIH TLV
None				

*** The specific chemical identity and/or weight percent is being withheld as a trade secret

3. HAZARDS IDENTIFICATION

No evidence of health danger has been reported.

Medical conditions generally aggravated by exposure: Dermatitis.

Symptomatic routes of exposure:

Skin Contact: Prolonged exposure may cause slight irritation.

Eye Contact: Direct exposure may cause slight irritation.

Inhalation: N/A

Ingestion: Large quantities may cause gastro-intestinal irritation.

4. FIRST AID MEASURES

No episodes of damage to health ascribable to the product have been reported. Nevertheless, observance of good industrial hygiene is recommended.

Eyes: Irrigate with water for 15 minutes. Seek medical advice if irritation persists.

Skin: Wash with soap and water. Wash contaminated clothing separately before using them again.

Ingestion: Drink plenty of water, seek medical attention and treat symptomatically. Do not give anything by mouth to an unconscious person.

Inhalation: N/A

5. FIRE FIGHTING MEASURES

Flash Point / Method: N/A

Flammable Limits: N/A

Extinguishing Media: Water - to cool fire exposed containers, dry chemical, foam, CO₂.

Autoignition Temperature: N/A

Protection of Fire Firefighter: Ordinary fire protection equipment.

Fire & Explosion Hazards: None, product will not burn.

6. ACCIDENTAL RELEASE MEASURES

Small spill: Dilute with large amounts of water and flush to waste.

Large spill: Absorb with sand and transfer to proper disposal site.

7. HANDLING AND STORAGE

Store in dry, cool conditions and in the original containers. Gloves and goggles may be worn as a practice of good industrial hygiene.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Follow the good industrial hygiene practices adopting suitable individual protective measures such as gloves and goggles. Do not eat or smoke while handling the product. Wash hands before eating and at the end of the work shift.

Respiratory Protection: Not required.

Skin Protection: PVC/ Latex recommended.
Eye Protection: Goggles/ safety glasses recommended.
Other: Apron recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Viscous liquid.
Appearance: Blue
Odor: slight
Vapor Pressure: N/A
Specific Gravity: 1.050 kg/L @ 20°C
Solubility in Water: Partially water soluble and partially solvent soluble.
pH: 4.0-6.0
Vapor Density: N/A
Evaporation Rate: N/A
Boiling Point: >100 °C
Melting Point: 0°C
Percent Volatiles: >50
Volatile Organic Compounds: 0 g/L

10. STABILITY AND REACTIVITY

Stability: This product is stable in normal conditions of use and storage.
Conditions to avoid: Heat, sunlight.
Materials to avoid: The product may react exothermically on contact with strong oxidizing agents or reducers, strong acids or bases.
Hazardous decomposition products: Thermal decomposition and combustion release carbon monoxides and other toxic gases and vapors.
Hazardous polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

According to currently available data, this product has not produced health damages. However, it should be handled according to good industrial practices.
Carcinogenicity: N/A
Acute Toxicity Data: LD₅₀: N/A; LC₅₀ : N/A

12. ECOLOGICAL INFORMATION

No data are available on the adverse effects of this material on the environment.

13. DISPOSAL CONSIDERATIONS

Dispose of in accordance with all current local, state, and federal regulations.
Grafic HU is biodegradable and drain-safe.

14. TRANSPORT INFORMATION

US DOT: Not Regulated
Transport Canada: Not Regulated
IATA: Not Regulated
IMO: Not Regulated
ADR: Not Regulated
RID: Not Regulated
IMDG: Not Regulated

15. REGULATORY INFORMATION

US Federal Regulations

TSCA: All components of this product are listed on the TSCA Inventory.
CERCLA (40 CFR 117.302): This material contains no Reportable Quantity (RQ) Substances.
SARA Title III (40 CFR 372)
Section 311/312 Hazard Categories: None.
Section 313 Reportable Ingredients: None.

US State Regulations

Pennsylvania Right-To-Know Act reportable components: None.
California Proposition 65 reportable components: None.

Canadian Regulations

DSL: All components of this product are listed on the Domestic Substances List.

Danger labeling under regulations 67/548/CEE and 1999/45/CE and following amendments and adjustments. Workers exposed to this chemical agent do not need to undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/CE regulation is respected.

16. OTHER INFORMATION

HMIS Rating: Health-0 , Fire-0 , Reactivity-0 ,



Personal Protection-B

MSDS prepared by: Kathy Tylka, Regulatory Affairs Coordinator

Revision Date/Revision History: January 7, 2004

April 22, 2009

January 16, 2012 – Section 1: new address

Note for users:

The information contained in the present sheet is based on our knowledge, on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product. This document must not be regarded as a guarantee on any specific product property. The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.



1. PRODUCT AND COMPANY IDENTIFICATION

Product code 35177
Product name Super Opaque Black
Product category 3500 Series UV Durable Graphic Screen Ink

Manufacturer or supplier's details

UNITED STATES
Nazdar Company
8501 Hedge Lane Terrace
Shawnee, KS 66227
Tel: 1-913-422-1888
Tel: 1-800-677-4657
Fax: 1-913-422-2294

UNITED KINGDOM
Nazdar Limited
7 Barton Road
Heaton Mersey Industrial Estate
Stockport, Cheshire SK4 3EG
Tel: +44 161 442 2111

Emergency Telephone Number

USA: Chemtrec: 1-800-424-9300
Outside USA: Chemtrec: 1-703-527-3887

Website: www.nazdar.com
MSDS Information: 1-913-422-1888 ext 2305
MSDS Contact: Regulatory Compliance
email: regcomp@nazdar.com

2. HAZARDS IDENTIFICATION

This product is a preparation. Health hazard information is based on its components.

Appearance Colored liquid
Emergency Overview Irritant. Sensitizer.

Eyes Moderately irritating to the eyes. The liquid splashed in the eyes may cause irritation and reversible damage.

Skin Moderate skin irritation. Prolonged or repeated skin contact with liquid may cause defatting resulting in drying, redness and possible blistering. May cause sensitization by skin contact. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. May be harmful if absorbed through skin.

Inhalation May cause irritation of respiratory tract. Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

Ingestion Ingestion may cause irritation to mucous membranes.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	Weight %
Glycol ether acrylate	Trade Secret	30 - 60
Vinyl Functional Monomer	Trade Secret	10 - 30
Acrylated Oligomer	Trade Secret	10 - 30
Carbon black	1333-86-4	1 - 5
Glycol ether acrylate	Trade Secret	1 - 5
Photoinitiator	Trade Secret	1 - 5
Photoinitiator	Trade Secret	1 - 5

4. FIRST AID MEASURES

Eye Contact May produce an allergic reaction. Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get medical attention immediately if irritation develops and persists.

Skin Contact May cause allergic skin reaction. In the case of skin irritation or allergic reactions see a physician. Wash off immediately with soap and plenty of water. Use a mild soap if available. Rinse immediately with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes.

Inhalation If breathed in, move person into fresh air. If breathing is irregular or stopped, administer artificial respiration. Get medical attention immediately.

Ingestion May produce an allergic reaction. If swallowed, DO NOT induce vomiting. Call a physician or Poison Control Centre immediately. Never give anything by mouth to an unconscious person.

5. FIRE-FIGHTING MEASURES

Flammable Properties No information available

Suitable Extinguishing Media Foam. Carbon dioxide (CO2). Dry chemical. Water spray. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Protective Equipment and Precautions for Firefighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Keep away from fire, sparks and heated surfaces. Cool containers / tanks with water spray. Polymerization is a highly exothermic reaction and may generate sufficient heat to cause thermal decomposition and/or rupture containers. To avoid thermal decomposition, do not overheat. Fire or intense heat may cause violent rupture of packages.

Specific Hazards Arising from the Chemical May cause sensitization by skin contact. Thermal decomposition can lead to release of irritating gases and vapours. Burning produces obnoxious and toxic fumes.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Remove all sources of ignition. Ventilate the area. Avoid breathing dust or vapor. Avoid contact with skin, eyes and clothing. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Methods for Cleaning Up Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13). Do not use sparking tools.

Environmental Precautions Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

7. HANDLING AND STORAGE

Handling Avoid contact with skin, eyes and clothing. Ensure adequate ventilation. Remove and wash contaminated clothing before re-use. Discard contaminated shoes. When using do not smoke. Do not take internally. Harmful or fatal if swallowed. Take notice of the directions of use on the label.

Storage Keep at temperatures between 9.9°C and 31.9°C. Keep container closed when not in use. Keep out of the reach of children. Keep away from direct sunlight.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Ontario TWAEV	Mexico OEL (TWA)
Carbon black	TWA: 3 mg/m ³ (inhalable fraction)	TWA: 3.5 mg/m ³	1750 mg/m ³	TWA: 3.5 mg/m ³	TWA/LMPE-PPT: 3.5 mg/m ³ STEL/LMPE-CT: 7 mg/m ³

Engineering Measures	Use ventilation adequate to keep exposures below recommended exposure limits. See MSDS. In case of insufficient ventilation, wear suitable respiratory equipment.
Personal Protective Equipment	
Respiratory Protection	Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust). Respirator with a vapour filter.
Eye Protection	Ensure that eyewash stations and safety showers are close to the workstation location. Avoid contact with eyes. Safety glasses with side-shields. Goggles. Face-shield.
Skin Protection	Wear protective gloves/clothing. Solvent-resistant apron and boots.
General Hygiene Considerations	Handle in accordance with good industrial hygiene and safety practice. Wash hands before eating, drinking, or smoking. Remove and wash contaminated clothing before re-use. Avoid contact with skin, eyes and clothing. Wear suitable gloves and eye/face protection. Regular cleaning of equipment, work area and clothing is recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colored liquid	Physical State	Liquid
Odor	Mild Sweet Acrylic	Odor Threshold	No information available
pH	No information available	Autoignition Temperature	No information available
Boiling point/Boiling Range	>149 °C / >300 °F	Melting Point/Range	No information available
Freezing Point/Range	No information available	Solubility	No information available
Evaporation Rate	No information available	Partition Coefficient (n-octanol/water)	No information available
Vapour Pressure	No information available	Vapour Density	Heavier than air
Flammability (solid, gas)	No information available	Flammability Limits in Air	
		Upper	No information available
		Lower	No information available
Flash Point	> 93 °C / > 200 °F	Photochemically Reactive	No
Method	Pensky Martens Closed Cup (PMCC)		
Weight Per Gallon (lbs/gal)	9.34	Specific Gravity	1.12
VOC by weight %	0.56	VOC by volume %	No information available
VOC lbs/gal (less water)	0.05	VOC grams/liter (less water)	6.22

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions.
Conditions to Avoid	Temperatures above 93°C. Keep away from direct sunlight.
Incompatible Products	Strong acids. Strong bases. Strong oxidizing agents. Reducing agents.
Hazardous Decomposition Products	Thermal decomposition can lead to release of irritating gases and vapours. Carbon dioxide (CO2). Carbon monoxide.
Possibility of Hazardous Reactions	None under normal processing. Do not store for longer periods at temperatures above 93°C.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Glycol ether acrylate	4660 µL/kg (Rat)	2540 µL/kg (Rabbit)	
Carbon black	>15400 mg/kg (Rat)	>3 g/kg (Rabbit)	

Chronic Toxicity

Component	ACGIH	IARC	NTP	OSHA
Carbon black	A3	Group 2B		X

Carbon black is classified as a carcinogen by the IARC (possibly carcinogenic to humans, Group 2B). In their evaluation of carbon black, IARC indicates exposure to carbon black, per se, does not occur when it remains bound within a product matrix, specifically, rubber, ink, or paint. Carbon black is present only in a bound form in this preparation.

Legend:

ACGIH: (American Conference of Governmental Industrial Hygienists)

IARC: (International Agency for Research on Cancer)

OSHA: (Occupational Safety & Health Administration)

A3 - Animal Carcinogen

Group 2B - Possibly Carcinogenic to Humans

X - Present

Sensitisation	May cause sensitization of susceptible persons.
Mutagenic Effects	No information available
Reproductive Effects	No information available
Developmental hazard	No information available
Teratogenicity	No information available
Chronic Effects	Repeated contact may cause allergic reactions in very susceptible persons. Avoid repeated exposure.
Target Organ Effects	Eyes, Respiratory system.

12. ECOLOGICAL INFORMATION

Ecotoxicity

We have no quantitative data concerning the ecological effects of this product. Should not be released into the environment.

Component	Algae	Fish	Water Flea
Carbon black			24h EC50 Daphnia magna: >5600 mg/L

Persistence and Degradability	No information available
Bioaccumulation	No information available
Mobility in Environmental Media	No information available

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods	Dispose of contents/container in accordance with local regulation.
Contaminated Packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

DOT

Printing Ink, Not Regulated

ICAO/IATA

Not classified as dangerous in the meaning of transport regulations

IMDG/IMO

Not classified as dangerous in the meaning of transport regulations

15. REGULATORY INFORMATION

International Inventories

Listed on TSCA. For further information, please contact: Manufacturer, importer, supplier

U.S. Federal Regulations

SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values
Glycol ether acrylate	Trade Secret	30 - 60	1.0
Glycol ether acrylate	Trade Secret	1 - 5	1.0

The above glycol ether acrylate is considered a reactive chemical in ultraviolet curable inks. Once initiated by a high dose of ultraviolet light, this glycol ether acrylate rapidly polymerizes (i.e. hardens) and becomes part of the ink film. The polymerization process of UV curable inks is measured in milliseconds.

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

Component	CAS-No	Weight %
Glycol ether acrylate	Trade Secret	30 - 60
Glycol ether acrylate	Trade Secret	1 - 5

U.S. State Regulations

Component	Massachusetts Right To Know	Minnesota Right To Know	New Jersey Right To Know	Pennsylvania Right To Know
Glycol ether acrylate	Not Listed	Not Listed	X	X
Carbon black	X	X	X	X
Glycol ether acrylate	Not Listed	Not Listed	X	X

California Prop. 65

WARNING! This product contains a chemical known in the State of California to cause cancer and / or WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm

Component	CAS-No	Weight %
Carbon black	1333-86-4	1 - 5

Canada

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR

Component	WHMIS Classifications of Components
Carbon black	D2A

REACH: Substances of Very High Concern (SVHC): Article 57 of Regulation (EC) No 1907/2006

None known

HMIS:	Health 2	Flammability 1	Reactivity 1	PPE X
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16. OTHER INFORMATION

Revision Date Apr-20-2012

Revision Note New MSDS format

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of MSDS



1. PRODUCT AND COMPANY IDENTIFICATION

Product code 1852
Product name Super Opaque Black
Product category 1800 PowerPrint® Plus UV Screen Ink

Manufacturer or supplier's details

UNITED STATES
Nazdar Company
8501 Hedge Lane Terrace
Shawnee, KS 66227
Tel: 1-913-422-1888
Tel: 1-800-677-4657
Fax: 1-913-422-2294

UNITED KINGDOM
Nazdar Limited
Barton Road
Heaton Mersey
Stockport, England SK4 3EG
Tel: +44 161 442 2111

Emergency Telephone Number

USA: Chemtrec: 1-800-424-9300
Outside USA: Chemtrec: 1-703-527-3887

Website: www.nazdar.com
MSDS Information: 1-913-422-1888 ext 2305
MSDS Contact: Regulatory Compliance
email: regcomp@nazdar.com

2. HAZARDS IDENTIFICATION

This product is a preparation. Health hazard information is based on its components.

Appearance Colored liquid
Emergency Overview Irritant. Sensitizer.

Eyes Moderately irritating to the eyes. The liquid splashed in the eyes may cause irritation and reversible damage.

Skin Moderate skin irritation. Prolonged or repeated skin contact with liquid may cause defatting resulting in drying, redness and possible blistering. May cause sensitization by skin contact. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. May be harmful if absorbed through skin.

Inhalation May cause irritation of respiratory tract. Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

Ingestion Ingestion may cause irritation to mucous membranes.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	Weight %
Glycol ether acrylate	Trade Secret	10 - 30
Vinyl Functional Monomer	Trade Secret	10 - 30
Acrylated Monomer	Trade Secret	5 - 10
Acrylated Monomer	Trade Secret	5 - 10
Carbon black	1333-86-4	1 - 5
Photoinitiator	Trade Secret	1 - 5
Photoinitiator	Trade Secret	1 - 5
Silicon Dioxide	7631-86-9	1 - 5

4. FIRST AID MEASURES

Eye Contact May produce an allergic reaction. Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get medical attention immediately if irritation develops and persists.

Skin Contact May cause allergic skin reaction. In the case of skin irritation or allergic reactions see a physician. Wash off immediately with soap and plenty of water. Use a mild soap if available. Rinse immediately with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes.

Inhalation If breathed in, move person into fresh air. If breathing is irregular or stopped, administer artificial respiration. Get medical attention immediately.

Ingestion May produce an allergic reaction. If swallowed, DO NOT induce vomiting. Call a physician or Poison Control Centre immediately. Never give anything by mouth to an unconscious person.

5. FIRE-FIGHTING MEASURES

Flammable Properties No information available

Suitable Extinguishing Media Foam. Carbon dioxide (CO2). Dry chemical. Water spray. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Protective Equipment and Precautions for Firefighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Keep away from fire, sparks and heated surfaces. Cool containers / tanks with water spray. Polymerization is a highly exothermic reaction and may generate sufficient heat to cause thermal decomposition and/or rupture containers. To avoid thermal decomposition, do not overheat. Fire or intense heat may cause violent rupture of packages.

Specific Hazards Arising from the Chemical May cause sensitization by skin contact. Thermal decomposition can lead to release of irritating gases and vapours. Burning produces obnoxious and toxic fumes.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Remove all sources of ignition. Ventilate the area. Avoid breathing dust or vapor. Avoid contact with skin, eyes and clothing. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Methods for Cleaning Up Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13). Do not use sparking tools.

Environmental Precautions Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

7. HANDLING AND STORAGE

Handling Avoid contact with skin, eyes and clothing. Ensure adequate ventilation. Remove and wash contaminated clothing before re-use. Discard contaminated shoes. When using do not smoke. Do not take internally. Harmful or fatal if swallowed. Take notice of the directions of use on the label.

Storage Keep at temperatures between 9.9°C and 31.9°C. Keep container closed when not in use. Keep out of the reach of children. Keep away from direct sunlight.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Ontario TWAEV	Mexico OEL (TWA)
Carbon black	TWA: 3 mg/m ³ (inhalable fraction)	TWA: 3.5 mg/m ³	1750 mg/m ³	TWA: 3.5 mg/m ³	TWA/LMPE-PPT: 3.5 mg/m ³ STEL/LMPE-CT: 7 mg/m ³
Silicon Dioxide		TWA: 6 mg/m ³	3000 mg/m ³		

Engineering Measures	Use ventilation adequate to keep exposures below recommended exposure limits. See MSDS. In case of insufficient ventilation, wear suitable respiratory equipment.
Personal Protective Equipment	
Respiratory Protection	Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust). Respirator with a vapour filter.
Eye Protection	Ensure that eyewash stations and safety showers are close to the workstation location. Avoid contact with eyes. Safety glasses with side-shields. Goggles. Face-shield.
Skin Protection	Wear protective gloves/clothing. Solvent-resistant apron and boots.
General Hygiene Considerations	Handle in accordance with good industrial hygiene and safety practice. Wash hands before eating, drinking, or smoking. Remove and wash contaminated clothing before re-use. Avoid contact with skin, eyes and clothing. Wear suitable gloves and eye/face protection. Regular cleaning of equipment, work area and clothing is recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colored liquid	Physical State	Liquid
Odor	Mild Sweet Acrylic	Odor Threshold	No information available
pH	No information available	Autoignition Temperature	No information available
Boiling point/Boiling Range	>149 °C / >300 °F	Melting Point/Range	No information available
Freezing Point/Range	No information available	Solubility	No information available
Evaporation Rate	No information available	Partition Coefficient (n-octanol/water)	No information available
Vapour Pressure	No information available	Vapour Density	Heavier than air
Flammability (solid, gas)	No information available	Flammability Limits in Air	
		Upper	No information available
		Lower	No information available
Flash Point	> 93 °C / > 200 °F	Photochemically Reactive	No
Method	Pensky Martens Closed Cup (PMCC)		
Weight Per Gallon (lbs/gal)	9.21	Specific Gravity	1.1
VOC by weight %	0.44	VOC by volume %	0.52
VOC lbs/gal (less water)	0.04	VOC grams/liter (less water)	4.86

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions.
Conditions to Avoid	Temperatures above 93°C. Keep away from direct sunlight.
Incompatible Products	Strong acids. Strong bases. Strong oxidizing agents. Reducing agents.
Hazardous Decomposition Products	Thermal decomposition can lead to release of irritating gases and vapours. Carbon dioxide (CO ₂). Carbon monoxide.
Possibility of Hazardous Reactions	None under normal processing. Do not store for longer periods at temperatures above 93°C.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Glycol ether acrylate	4660 µL/kg (Rat)	2540 µL/kg (Rabbit)	
Acrylated Monomer	5 g/kg (Rat)	3600 µL/kg (Rabbit)	

Acrylated Monomer	5190 µL/kg (Rat)	5000 mg/kg (Rabbit)	
Carbon black	>15400 mg/kg (Rat)	>3 g/kg (Rabbit)	
Silicon Dioxide	>5000 mg/kg (Rat)	>2000 mg/kg (Rabbit)	>2.2 mg/L (Rat) 1 h

Chronic Toxicity

Component	ACGIH	IARC	NTP	OSHA
Carbon black	A3	Group 2B		X

Carbon black is classified as a carcinogen by the IARC (possibly carcinogenic to humans, Group 2B). In their evaluation of carbon black, IARC indicates exposure to carbon black, per se, does not occur when it remains bound within a product matrix, specifically, rubber, ink, or paint. Carbon black is present only in a bound form in this preparation.

Legend:

ACGIH: (American Conference of Governmental Industrial Hygienists)

IARC: (International Agency for Research on Cancer)

OSHA: (Occupational Safety & Health Administration)

A3 - Animal Carcinogen

Group 2B - Possibly Carcinogenic to Humans

X - Present

Sensitisation	May cause sensitization of susceptible persons.
Mutagenic Effects	No information available
Reproductive Effects	No information available
Developmental hazard	No information available
Teratogenicity	No information available
Chronic Effects	Repeated contact may cause allergic reactions in very susceptible persons. Avoid repeated exposure.
Target Organ Effects	Eyes, Respiratory system.

12. ECOLOGICAL INFORMATION

Ecotoxicity

We have no quantitative data concerning the ecological effects of this product. Should not be released into the environment.

Component	Algae	Fish	Water Flea
Carbon black			24h EC50 Daphnia magna: >5600 mg/L
Silicon Dioxide	72h EC50 Pseudokirchneriella subcapitata: 440 mg/L	96h LC50 Brachydanio rerio: 5000 mg/L [static]	48h EC50 Ceriodaphnia dubia: 7600 mg/L

Persistence and Degradability	No information available
Bioaccumulation	No information available
Mobility in Environmental Media	No information available

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods	Dispose of contents/container in accordance with local regulation.
Contaminated Packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

DOT

Printing Ink, Not Regulated

ICAO/IATA

Not classified as dangerous in the meaning of transport regulations

IMDG/IMO

Not classified as dangerous in the meaning of transport regulations

15. REGULATORY INFORMATION

International Inventories

Listed on TSCA. For further information, please contact: Manufacturer, importer, supplier

U.S. Federal Regulations

SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values
Glycol ether acrylate	Trade Secret	10 - 30	1.0

The above glycol ether acrylate is considered a reactive chemical in ultraviolet curable inks. Once initiated by a high dose of ultraviolet light, this glycol ether acrylate rapidly polymerizes (i.e. hardens) and becomes part of the ink film. The polymerization process of UV curable inks is measured in milliseconds.

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

Component	CAS-No	Weight %
Glycol ether acrylate	Trade Secret	10 - 30

U.S. State Regulations

Component	Massachusetts Right To Know	Minnesota Right To Know	New Jersey Right To Know	Pennsylvania Right To Know
Glycol ether acrylate	Not Listed	Not Listed	X	X
Acrylated Monomer	Not Listed	X	Not Listed	Not Listed
Acrylated Monomer	Not Listed	X	Not Listed	Not Listed
Carbon black	X	X	X	X
Silicon Dioxide	X	X	X	X

California Prop. 65

WARNING! This product contains a chemical known in the State of California to cause cancer and / or WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm

Component	CAS-No	Weight %
Carbon black	1333-86-4	1 - 5

Canada

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR

Component	WHMIS Classifications of Components
Acrylated Monomer	D2B
Acrylated Monomer	D2B
Carbon black	D2A
Silicon Dioxide	Uncontrolled product according to WHMIS classification criteria

Regulation (EC) No. 1907/2006 (REACH), Article 57

This product does not contain substances of very high concern (Regulation (EC) No. 1907/2006 (REACH), Article 57)

HMIS:	Health	Flammability	Reactivity	PPE
	2	1	1	X

16. OTHER INFORMATION

Revision Date Jul-25-2012

Revision Note New MSDS format

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of MSDS



311 Saulteaux Crescent
Winnipeg, Manitoba, Canada, R3J 3C7
Toll Free Phone (North America): 1-800-665-4875
Toll Free Fax (North America): 1-800-498-6675
Phone: 01-204-885-7792
Fax: 01-204-831-0426
Website: www.lancergroup.com

Excellence through aggressive research.

Customer Question;

If these products are all part of your Enviro Series, why do the MSDS sheets all say not to dump them at a dump, or in a sewer? Our water waste goes into a septic field out here, and I want to make sure we have no issues with Chemicals, as it will eventually all leach back into the water table.

Answer from Lancer Group;

We make those statements on MSDS as standard chemical procedures. Although the products mentioned are bio degradable, we have no control over what the products are used for. In some cases they might be mixed with other products in the cleaning process. For example TR blend will clean most inks and paints, and we have no control over what may be in those products. Once again, this is a standard procedure for all chemical products.



MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Manufacturer's Name: Lancer Group International
311 Saulteaux Crescent
Winnipeg, Manitoba,
Canada R3J 3C7

Emergency Telephone Number: (204) 889-7422

Trade Name: Excalibur Direct Print Phthalate-Free Plastisol Inks

Codes: 100 Horizon PF Series, 400 PF Color Series, 400 PF FF Series, 504 PF Base, 500 PF Color Series, 505 PF Process Base, 5050 Plus PF White, 550 PF Base, 550 PF Color Series, 551 PF Series, 525 Competition White PF, 527 Keystone White PF, 565 PF White, 567 PF FF High Opacity White, 579 PF White, 581 PF White, 585 PF White, 595 PF White, 596 Miracle White, 596 Miracle Gold, 600 PF Process Colors, 600 PF Super Series Process Colors, 700 Series PF, 750 PF Stone Print Series, 825 PF Foam Grip, 833 PF Super Clear High Density Ink, 834 PF High Density Base, 835 PF Base, 835 High Density Color Series, 837 PF Coning Base, 838 PF Super Clear High Density Base, 1550 PF SportPro Athletic Series, 1551 PF ColorPro Athletic Series, 1596 Sport Pro Defender, 1800 PF Spot Process Color Series, Jelly Print PF Series, Knife Coat PF Series, Spray Plas PF Base, Retroflec PF, Quicksilver PF, Stone Age PF Series and High Density PF, and Sponge Base PF Inks, 801 Excalibur Foil Proof Ink

Chemical Family: Plastisol

Product Use: Screen printing ink

WHMIS Classification: Not controlled

24 Hour Emergency Number: (613) 996-6666 CANUTEC
(Use in case of a dangerous goods emergency.)

SECTION 2. COMPOSITION AND INFORMATION ON INGREDIENTS

Ingredients	Percentage	TLV (ppm)	CAS#
Plasticizer Phthalate Free	30-40%		166412-78-8
Calcium carbonate	15-25%		7789-78-8
Fume silica	1-5%		112945-52-5
PVC resin	30-40%		9002-86-2
Titanium Dioxide	5-40%		13463-67-7
Organic pigment	10-20%		Mixture

Composition comments: These products do not contain any known currently listed hazardous materials nor do they contain any carcinogenic or suspected carcinogenic agents.

There are no hazardous ingredients as defined under OSHA Regulations 29 CFR 1910.1200

SECTION 3. HAZARDS IDENTIFICATION

Primary Routes of Exposure: Potential routes of overexposure to these products are skin contact and inhalation of fumes during heat processing.

Effects of Overexposure: Fumes emitted during fusion may irritate eyes, skin or respiratory tract.

Chronic Effects: Skin sensitization and allergenic reactions may occur in certain individuals in slight cases.

Synergistic Products: None known

SECTION 4. FIRST AID MEASURES

Eye Contact: Immediately flush eyes with water for 15 minutes.

Skin Contact: Remove excess material from skin and wash with soap and water.

Inhalation: Remove to fresh air immediately.

Ingestion: Get immediate medical attention and advice.

SECTION 5. FIRE FIGHTING MEASURES

Flammability Properties

Flash Point (Closed Cup), °C: 227

Hazardous Combustion Products: Oxide of Carbon, Hydrochloric Acid

Explosion Limits: Not applicable

Explosion Data: Not applicable

Extinguishing Media: CO₂, Dry Chemical, Foam

Special Fire Fighting Procedures: Avoid breathing combustion product or use self-contained breathing apparatus.

Unusual Fire and Explosion Hazards: Container may explode when subjected to extreme conditions and temperatures.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Procedure if Material is Spilled or Released: Scoop material into a clean, properly labeled container for disposal and absorb remainder with inert material.

SECTION 7. HANDLING AND STORAGE

Handling: Handle and open containers with care. Avoid eye contact. Avoid excessive or repeated skin contact. Keep the containers closed when not in use.

Storage: Keep the container tightly closed in a cool, dry, well-ventilated area, away from oxidizing and combustible materials.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiration Protection: Not required with normal adequate ventilation

Ventilation: Exhaust system sufficient to remove vapours released during fusion process

Engineering Controls: Not necessary

Personal Protective Equipment (PPE)

Skin Protection: Nitrile gloves if continual contact is likely

Footwear: Sneakers

Clothing: Nitrile smock if available

Respiratory Protection: Not required with normal adequate ventilation

Personal Hygiene: Avoid breathing fumes during fusion process. Wash hands before eating. Wash contaminated clothing before reuse. Normal washing will be sufficient.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Cream paste with slight odour

Boiling Range, °C: 260

Vapor Pressure (mm Hg @ 20°C): < 0.001 @ 38 °C

Vapor Density (Air = 1): Heavier than air

Specific Gravity (Water = 1): 1 – 1.5

Solubility in water: Insoluble

Percent Volatile by volume: Not applicable; Does not contain any volatile organic compounds

Hazardous Air pollutant: Does not contain any HAP's in accordance with US Environmental requirement list

pH: 7

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability: Stable

Incompatibility (materials to avoid): Oxidizing material can cause reaction

Conditions of Reactivity: Prolonged exposure to temperatures @ 300° C, Product stable at ambient temperature

Hazardous Decomposition: Not established

SECTION 11. TOXICOLOGICAL INFORMATION

There is no known published data available for this product.

SECTION 12. ECOLOGICAL INFORMATION

There is no known published data available for this product..

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose of in accordance with all Local, Provincial and Federal Regulations.

SECTION 14. TRANSPORT INFORMATION

Canadian TDG Shipping Description: Not regulated

US DOT Classification: Not regulated
IATA: Not classified as dangerous goods

SECTION 15. REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of these products are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

US EPA CERCLA Hazardous Substances (40 CFR 302): Not applicable

California Proposition 65: Not applicable

SARA Title III Section 302 Extremely Hazardous Substances: Not applicable

SARA Title III Section 313 Toxic Chemicals: Not applicable

Canadian DSL Inventory Status: All components of these products are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

National Pollutant Release Inventory (NPRI): Not applicable

DSL: All components of this product are on the Canadian Substance List

Note: Not available

SECTION 16. OTHER INFORMATION

DISCLAIMER: All information presented herein is given in good faith and is based on sources and tests are considered to be reliable but cannot be guaranteed. It is the user's full responsibility to accept risk for the safety, toxicity, handling, storage, and use of the product as well as to determine the suitability of this product for a specific purpose. We can make no warranty as to the results to be obtained in using the product. Therefore the user must assume all risk.

MSDS Prepared by: Discovery/Lancer Group

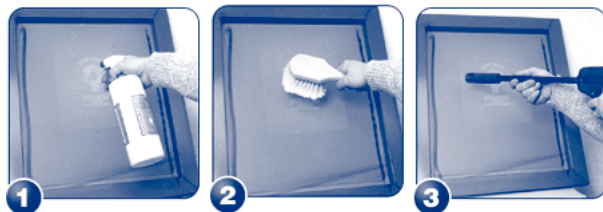
Phone Number: (204) 885-7792

Issue Date: February 1, 2012

Revision: 8

Enviro Series® Cleaning and Reclaiming Supplies

Environmentally Responsible Cleaning Products
3 Easy Steps For Cleaning and Reclaiming Screens



Enviro Series screen cleaning and reclaiming supplies for screen printing are the best choice because Enviro Series is made from natural ingredients. No harmful, corrosive solvents or chemicals are used in Enviro Series. The best thing about Enviro Series is that it is responsible to the environment. This is important in today's world. Enviro Series consists of a simple range of products that vary from screen preparation to screen clean up, as well as mesh preparation and ink clean up for screen printing. These products are biodegradable, which means they are safe to use and safe for the environment. Enviro Series screen cleaning products are the safest choice!



Enviro Series® Product Guide

	PRODUCT	DESCRIPTION	PROCEDURE
STEP 1	939 Mesh Roughener for Screen Preparation	Roughens new mesh for better stencil adhesion. 939 Mesh Roughener will not clog screen.	1) Apply 939 Mesh Roughener to both sides of the screen. 2) Work 939 in well with brush and let stand for 1 - 2 minutes. 3) Wash away with water.
	Superwet Mesh Prep for Screen Preparation	Degreaser & wetting agent for screen fabric. Allows screen to hold water for easy application of capillary films and better direct emulsion coating.	1) Apply Superwet Mesh Prep onto fabric. 2) Work in both sides with brush. 3) Wash away with water.
STEP 2	2000 Green for Ink Wash Up	Plastisol wash up.	1) Apply 2000 Green to screen. 2) Work in with brush. 3) Wash away with water.
	TR Blend for Ink Wash Up	Wash up for virtually any type of ink. TR Blend will clean adhesive from pallets with ease. Can be used as an activator for Phantom 1000 Ghost and Haze Remover.	Ink wash up: 1) Apply to ink. Work in well with brush. Wash away with water. 2) Remove adhesive residue from pallets: Squirt onto pallet and wipe with a rag. 3) Activator for Phantom 1000: For ghost images: first apply Phantom 1000, then apply TR Blend as an activator. Wash away with pressure spray. See Phantom 1000 directions.
STEP 3	311 Quick Strip Stencil Removal	A fast-acting biodegradable stencil remover for efficient removal of direct emulsion & capillary films. 311 is a concentrate. Dilute with water - 20 parts water to 1 part 311 Quick Strip concentrate.	Spray and brush into both sides of screen. Let stand for a few minutes. Wash away with water. NOTE: Do not let 311 Quick Strip dry on the screen or it will harden the emulsion and make removal difficult.
	Phantom 1000 Ghost & Haze Remover	Phantom 1000 is a super efficient, biodegradable haze remover. Phantom 1000 will not damage screen mesh.	Directions for light stains: 1) Apply Phantom 1000 to ghost image area & work well with brush. 2) Apply TR Blend to same area & work well with brush. 3) Let stand a few minutes & wash away with strong water spray. Directions for heavier stains: 1) Apply Phantom 1000 to stained area & work in well with brush. 2) Let stand at room temperature until completely dry (usually overnight). 3) After screen is dry, apply TR Blend to screen, work in well with Enviro Brush and wash away with strong water spray.





MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Manufacturer's Name: Lancer Group International
311 Saulteaux Crescent
Winnipeg, Manitoba,
Canada R3J 3C7

Emergency Telephone Number: (204) 889-7422

Trade Name: Phantom 1000

Code: PH 1000

Chemical Family: Aqueous mixture of Sodium hydroxide and Sodium hypochlorite

Product Use: Ghost and haze remover

WHMIS Classification: D-2B: Toxic (Skin Sensitizer), E: Corrosive

24 Hour Emergency Number: (613) 996-6666 CANUTEC
(Use in case of a dangerous goods emergency.)

SECTION 2. COMPOSITION AND INFORMATION ON INGREDIENTS

Ingredients	Percentage (w/w)	ACGIH TLV (ppm)	CAS#
Sodium hydroxide	10 - 15	Not listed	001370-73-2
Sodium hypochlorite	1 - 5	Not listed	007681-52-9

SECTION 3. HAZARDS IDENTIFICATION

Emergency Overview: Harmful if inhaled or swallowed. Causes delayed lung injury. Toxic effects are principally related to its corrosive properties. Prolonged or repeated exposure may cause discoloration and erosion of teeth. Causes severe skin and eye burns. Vapours are extremely irritating to eyes and respiratory tract. May cause chemical pneumonitis, pulmonary oedema, skin sensitization or other allergic responses. Severe exposure may cause lung damage. Can decompose at high temperatures forming toxic gases. Contents may develop pressure on prolonged exposure to heat.

Respiration/Skin Sensitization Data: Sodium hypochlorite may cause skin sensitization or other allergic responses. Sensitization is the process whereby a biological change occurs in the individual because of previous exposure to a substance and, as a result, the individual reacts more strongly when subsequently exposed to the substance. Once sensitized, an individual can react to extremely low airborne levels, even below the TLV or to skin contact.

Synergistic Materials: None known.

SECTION 4. FIRST AID MEASURES

General Guidelines: Prompt removal of the material and obtaining medical attention are essential for all contact. Remove all contaminated clothing and immediately wash the exposed areas with copious amounts of water. Continue flushing during transportation to the emergency department. Corrosive effects may be delayed (up to 72 hours) and damage may occur without the sensation or onset of pain. Contact local poison control center for further guidance.

Eye Contact: Immediately flush eyes with water for at least 30 preferably up to 60 minutes. Hold eyelids open during flushing. If irritation persists, repeat flushing. Do not transport victim until recommended flushing period is completed unless flushing can be continued during transport.

Skin Contact: Prompt removal of the material for the skin is essential for all concentrations, whether as a solid or a concentrated or dilute solution. Remove all contaminated clothing and immediately wash the exposed areas with copious amount of water for a minimum of 30 minutes up to 60 minutes for critical body areas. Obtain medical attention.

IMMEDIATELY: While the patient is being transported to a medical facility, apply compresses of water. If medical treatment must be delayed, immersed the affected areas in iced water. Avoid prolonged immersion because of risk of frostbite. Remove briefly from iced solution every 10-15 minutes. If immersion is not practical, compresses of iced water can be applied. Avoid freezing tissues. See "Note to Physician" below.

Inhalation: Move victim to fresh air. Give artificial respiration only if breathing has stopped. Give CPR if there is no breathing or pulse. Oxygen administration may be beneficial in this situation but should only be administered by personnel trained in its use. Obtain medical attention immediately.

Ingestion: Do not attempt to give anything by mouth to an unconscious person. Do not give acidic agents (e.g. citrus juices or vinegar) to neutralize the alkali. This action may cause an exothermic reaction and burn the esophagus. IMMEDIATELY contact local poison control center. IF victim is alert and not convulsing, rinse mouth and give 1-2 glasses of milk. Water may be used if milk is not available but is not as effective. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more milk or water.

Note to Physicians: Immediate consultation with the local poison control center should be initiated. Severe and sometimes delayed (up to 72 hours) local and systematic reactions can occur.

SECTION 5. FIRE FIGHTING MEASURES

Flammability Properties

Flammability Class (WHMIS): Not regulated

Flash Point (closed cup, °C): Not applicable

Explosion Limit: Not applicable

Hazardous Combustion Products: Thermal decomposition products are toxic and may include oxides of chlorine, sodium and irritating gases. Decomposition causes evolution of oxygen.

Sodium hypochlorite solution decomposes slowly. Decomposition is accelerated by heat (temperature above 40°C) and sunlight. Some metals accelerate the decomposition of Sodium hypochlorite.

Extinguishing Media: DO NOT USE WATER. Use media for surrounding fire and/or materials. Use carbon dioxide or dry chemical media for small fires. If only water is available, use it in the form of fog

Special Firefighting Procedures: Avoid direct contact of this product with water as this can cause a violent exothermic reaction. Remove containers from fire zone wherever possible. Use media appropriate for surrounding fire and/or materials.

Fire fighting Protective Equipment: Use self-contained breathing apparatus and protective clothing. Protective clothing for skin and eye protection should be worn to protect against highly alkaline materials.

Unusual Fire Explosion Hazards: Not normally a fire hazard. Water content of product prevents ignition. Sodium hypochlorite is a strong oxidant, but solutions do not support combustion. If mixed with acids or warmed to temperatures greater than 40°C. Hypochlorite solutions release chlorine gas. Avoid direct contact of this product with water as this can cause a violent exothermic reaction. Closed containers

exposed to heat may explode. Spilled material can cause floors and contact surfaces to become slippery. Reacts with most metals to produce hydrogen gas, which could make an explosive mixture with air. Sodium hypochlorite may react with primary amines to form nitrogen trichloride, which explodes spontaneously in air.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Procedure if Material is Spilled or Released: For release to land or storm water run off, contain discharge by constructing a dyke or applying inert absorbent to release to water. Utilize damming and/or water diversion to minimize the spread of contamination. Ventilate closed spaces. Notify applicable government authority if release is reportable or could become slippery. Wear respirator, protective clothing and gloves. Replace damaged containers immediately to avoid loss of material and contamination of surrounding area.

SECTION 7. HANDLING AND STORAGE

Handling: Use normal good industrial hygiene and house keeping practices. Containers, which have been exposed to heat, may be under internal pressure. These should be cooled and carefully vented before opening. A face shield and apron should be worn. When diluting, add this material to water in small amounts to avoid spattering. Never add water to this material. The water should be lukewarm. Add small quantities of this material slowly to large quantities of water stirring constantly all the while to avoid concentration build-up that may result to violent eruption of a highly corrosive solution.

Storage: Hazardous carbon monoxide can form upon contact with food and beverages products in enclosed spaces and can cause death. Do not store near oxidizing agents or acids. Store in a cool, well-ventilated area. Keep away from heat sparks and flames. Keep containers closed. Do not expose sealed containers to temperatures above 40°C. Storage tanks should be in a contained area. To control any spills or leaks.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Local exhaust ventilation required. Ventilation should be corrosion proof. Make-up air should be supplied to balance air that is removed by local or general exhaust ventilation. Ventilate low-lying areas such as sumps or pits where dense vapours may collect.

Personal Protective Equipment (PPE)

Skin Protection: Gloves and protective clothing made from neoprene or PVC should be impervious under conditions of use.

Respiratory Protection: No specific guidelines available. A NIOSH/MSHA-approved full-face piece air-purifying respirator equipped with acid gas, dust, mist, fume cartridges for concentration up to 0.5 ppm chlorine or 2 mg/M3 sodium hydroxide. An air supplied respirator if concentrations are higher or known.

Other Personal Protective Equipment: Wear an impermeable apron and boots. Locate safety shower and eyewash station close to chemical handling area. Take all precautions to avoid personal contact.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Pale yellow liquid with chlorine odor

Boiling Range, °C: Above 100

Melting/Freezing Point, °C: Not available

Vapor Pressure (mm Hg @ 20°C): Not available

Vapor Density (Air = 1): Not available

Specific Gravity (Water = 1): 1.01

Solubility in water: Soluble

Percent Volatile by volume: 70 to 90

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability:

Under Normal Conditions: Unstable. Sodium Hypochlorite solutions decompose slowly. Decomposition is accelerated by heat (temperatures above 40°C) and sunlight stability decreases with concentration, heat, light and decreases in pH. Some metals accelerate the decomposition of Sodium Hypochlorite.

Under Fire Conditions: Not normally a fire hazard. Water content of product prevents ignition.

Conditions To Avoid: High temperatures, sparks, open flames and all other sources of ignition, temperatures above 40°C. Avoid direct sunlight. The heat of sunlight can contribute to instability. Avoid decrease in pH. Avoid moisture contamination. Keep tightly closed to protect quality.

Incompatibility: Violently active with: aldehydes, organic materials and acids. Strong oxidizers Vigorous effervescence results on mixture with acids. Contact with acid will liberate corrosive chlorine gas. Reducing agents. Avoid contact with water, Methanol, combustibles, alkalis, organic halides, and strong bases. May react with organohalogen compounds to form spontaneous combustible compounds. May react explosively with nitro- and chloro-organic compounds, glycols and organic peroxides. Violently polymerizes acetaldehyde and acrylonitrile.

Hazardous Decomposition Products: Thermal decomposition products are toxic and any include oxides of chlorine, sodium and irritating gases. Decomposition causes evolution of oxygen.

Hazardous polymerization: Will not occur

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicity Data

Sodium Hydroxide: LD50 (Dermal, Rabbit) = 1,350 mg/Kg

Sodium Hypochlorite: LD50 (Oral, Mouse) = 5,800 mg/Kg

LD50 (Oral, Rat) = 8,910 mg/Kg

LC50 (inhal'n, Rat, 4h) = 5,250 mg/M3

Carcinogenicity: The ingredient(s) of this product is/are not classed as carcinogenic by ACGIH, IARC, OSHA or NTP.

Reproductive Effects: Sodium Hypochlorite: Reproductivity tests in animals have been negative or inconclusive.

Mutagenicity: No adverse mutagenic effects are anticipated.

Tetratogenicity: No adverse tetratogenic effects anticipated.

SECTION 12. ECOLOGICAL INFORMATION

There is no known published data available for this product.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose waste materials at an approve hazardous waste treatment facility in accordance with local applicable local, provincial and federal regulations. Do not dispose of waste with normal garbage or sewer system.

SECTION 14. TRANSPORT INFORMATION

Canadian TDG Shipping Description

Proper Shipping Name: Corrosive Liquids, NOS (Sodium Hydroxide),

Hazard Class: Class 8 (9.2)

Un Number: UN1760,

Packing Group: II

Label (s)/Placard (s): Corrosive

Regulated Limit (9.2): Sodium Hydroxide: 50 kg, Sodium Hypochlorite: 5 kg

Exemptions: not applicable

US DOT Classification

Proper Shipping Name: Corrosive Liquids, NOS (Sodium Hydroxide),

Hazard Class: Class 8 (9.2)

Un Number: UN1760,

Packing Group: II

Reportable Quantity (CERCLA-RQ): Sodium Hydroxide = 1,000 lbs/454 kg.
Sodium Hypochlorite = 100 lbs/45.4 kg.

Exemptions: Not applicable

SECTION 15. REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of these products are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

Canadian DSL Inventory Status: All components of these products are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

Note: Not available

SECTION 16. OTHER INFORMATION

DISCLAIMER: All information presented herein is given in good faith and is based on sources and tests are considered to be reliable but cannot be guaranteed. It is the user's full responsibility to accept risk for the safety, toxicity, handling, storage, and use of the product as well as to determine the suitability of this product for a specific purpose. We can make no warranty as to the results to be obtained in using the product. Therefore the user must assume all risk.

MSDS Prepared by: Discovery/Lancer Group

Phone Number: (204) 885-7792

Issue Date: February 1, 2012

Revision: 4

Replaces sheet dated: January 2009



MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Manufacturer's Name: Lancer Group International
311 Saulteaux Crescent
Winnipeg, Manitoba,
Canada R3J 3C7

Emergency Telephone Number: (204) 889-7422

Trade Name: TR Blend

Code: TR

Chemical Family: Mixture of aliphatic ester and cyclohexene

Product Use: Cleaner, degreaser

WHMIS Classification: B-3: Combustible Liquid, D-2B: Toxic (Skin Sensitizer, Skin and Eye Irritant)

24 Hour Emergency Number: (613) 996-6666 CANUTEC
(Use in case of a dangerous goods emergency.)

SECTION 2. COMPOSITION AND INFORMATION ON INGREDIENTS

Ingredients	Percentage	TLV (ppm)	CAS#
4-Isopropenyl-1-methyl cyclohexene	20-40	Not listed	005989-27-5
Dimethyl glutarate	25-45	Not listed	001119-40-0
Dimethyl adipate	5-15	Not listed	000627-93-0
Dimethyl succinate	5-15	Not listed	000106-65-0
Primary Alcohol Alkoylate	5-15	Not listed	000686-25-8

SECTION 3. HAZARDS IDENTIFICATION

Effects of Overexposure: Causes skin and eye irritation. May blurred vision, weight loss and liver damage. At elevated temperatures, may cause irritation of the eye and respiratory tract.

Potential Health Effects

Inhalation: Product may be mildly irritating to the nose, throat and respiratory tract and may cause coughing and sneezing.

Eye Contact: This product causes irritation, redness and pain.

Skin Contact: This product may cause irritation. May cause defatting, drying and cracking of skin.

Ingestion: This product may cause mild gastrointestinal discomfort.

SECTION 4. FIRST AID MEASURES

Eye Contact: Immediately flush eyes with water for at least 20 minutes lifting upper and lower eyelids occasionally. If irritation persists, repeat flushing. Obtain medical advice.

Skin Contact: Start flushing the area while removing contaminated clothing. Wash affected areas thoroughly with soap and water. If irritation, redness or burning sensation develops and persists, obtain medical advice.

Inhalation: Move victim to fresh air. Give artificial respiratory only if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing and pulse. Obtain medical attention immediately.

Ingestion: Do not attempt to give anything by mouth to an unconscious person. If victim is alert and not convulsing, rinse mouth out and give ½ glass of water to dilute material. Vomiting should only be induced under the direction of a physician or a poison control center. If spontaneous vomiting occurs, immediately transport victim to an emergency facility.

SECTION 5. FIRE FIGHTING MEASURES

Flammability Properties

Flammability Class (WHMIS): B3 – Combustible Liquids

Flash Point (closed cup, °C): 87

Auto-Ignition Temperature, °C: 293

Flammability Limits in Air, %: LEL = 0.75 (3)

UEL = 6.5 (3)

Hazardous Combustion Products: Thermal decomposition products are toxic and may include oxides of carbon

Extinguishing Media: Use of carbon dioxide or dry chemical media for small fires. If only water is available, use it in the form of fog. This material may produce a floating hazard in extreme conditions.

Special Fire Fighting Procedures: Fire fighters should wear self-contained breathing apparatus and full protective clothing. Use water spray to cool nearby containers and structures exposed to fires.

Unusual Fire and Explosion Hazards: Vapors from this product is heavier than air, and may “travel” to a source of ignition (e.g. pilot lights, heaters, electric motors) some distance away, and then “flash back” to the point of product discharge causing an explosion and fire. Spilled material may cause floors and contact surface to become slippery.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Procedure if Material is Spilled or Released: Contain spill by soaking with absorbent material and flush area with lots of water.

SECTION 7. HANDLING AND STORAGE

Handling: Ground and bond equipment and containers to prevent static charge build-up. Use spark resistant tools and avoid splash filling of containers. Use normal good industrial hygiene and house keeping practices.

Storage: Store in a cool, well-ventilated area. Keep away from heat, sparks and flames. Keep container closed. Do not expose sealed containers to temperatures above 40°C. Protect from direct sunlight. Protect against physical damage.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: General exhaust is acceptable. Local exhaust ventilation preferred. Make up air should be supplied to balance air that is removed by local or general exhaust ventilation. Ventilate low-lying areas such as sumps or pits where vapors may collect.

Personal Protective Equipment (PPE)

Skin Protection: Gloves and protective clothing made from butyl rubber should be impervious under condition of use. Prior to use, user should confirm impermeability. Discard contaminated gloves.

Eye Protection: Safety glasses with side shields. Use full face-shield or chemical safety goggles when there is potential for contact.

Respiratory Protection: No specific guidelines available. NIOSH approved respirator needed in circumstances where much mist and vapors are generated.

Other Personal Protective Equipment: Wear an impermeable apron and boots. Locate safety shower and eyewash station close to chemical handling area. Take all precautions to avoid personal contact.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Colorless liquid, mild and sweet odor

Boiling Range, °C: 166-194

Melting/Freezing Point, °C: -20

Vapor Pressure (mm Hg @ 20°C): 0.2

Vapor Density (Air = 1): Not available

Specific Gravity (Water = 1): 0.978

Solubility in water: Miscible

Percent Volatile by Volume: 100

Evaporation Rate (BA=1): <1

pH: Not applicable

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability: Stable under normal conditions. Flammable under fire conditions.

Incompatibility: Strong oxidizers. Lewis mineral acids. Reducing agents.

Conditions to Avoid: High temperatures, sparks, open flames and all other sources of ignition.

Hazardous Decomposition Products: Thermal decomposition products are toxic and may include oxides of carbon

Hazardous Polymerization: Will not occur

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicity Data

LD50 (oral, rat) = 6234 mg/kg (3)

LD50 (dermal, rabbit) = above 2850 mg/kg (3)

Carcinogenicity: Not classified as a carcinogen by ACGIH or IARC, not regulated as carcinogens by OSHA and not listed as carcinogens by NTP.

Reproductive Effects: The results for reproductivity tests in animals have been negative.

Mutagenicity: The results of mutagenicity tests in animals have been negative.

Teratogenicity: The results of teratogenicity tests in animals have been negative.

Respiratory/ Skin Sensitization: None known

Synergistic Materials: None known

SECTION 12. ECOLOGICAL INFORMATION

There is no known published data available for this product.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose of waste material at an approved (hazardous) waste treatment/disposal facility in accordance with applicable local, provincial and federal regulations. Do not dispose of waste with normal garbage, or to sewer systems.

SECTION 14. TRANSPORT INFORMATION

Canadian TDG Shipping Description: Not regulated

US DOT Classification: Not regulated

SECTION 15. REGULATORY INFORMATION

Canada

CEPA-NSNR: All constituents of this product are included on the DSL under CEPA

CEPA-NPRI: Not included.

Controlled Products Regulations Classification (WHMIS): D-2B Toxic (Skin and Eye Irritant)

USA

Environmental Protection Act: All constituents of this product are included on the TSCA inventory under US-EPA.

OSHA Hazard Communication (29CFR 1910.1200) classification: Skin and Eye Irritant

HMIS: 1 Health, 0 Fire, 0 Reactivity.

SECTION 16. OTHER INFORMATION

DISCLAIMER: All information presented herein is given in good faith and is based on sources and tests are considered to be reliable but cannot be guaranteed. It is the user's full responsibility to accept risk for the safety, toxicity, handling, storage, and use of the product as well as to determine the suitability of this product for a specific purpose. We can make no warranty as to the results to be obtained in using the product. Therefore the user must assume all risk.

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POLYONE CORP.

EMISSIONS GENERATED DURING THE FUSION OF VINYL SCREEN PRINTING INKS

A vinyl screen printing ink is a liquid or paste dispersion of polyvinyl chloride resins, plasticizers, pigments, and miscellaneous additives. When cured, this material becomes a fused solid. During the curing process, vinyl screen printing inks give off small amounts of fumes or vapors. These fumes may be irritating to the respiratory tract, eyes, or skin of some sensitive persons. These emissions might contain hydrogen chloride (HCl) and/or trace amounts of some form of ester ester or petroleum hydrocarbon plasticizer (see below). Vinyl screen printing inks are typically less than 1% volatile by weight. Vinyl screen printing inks that have solvent added will typically be more volatile due to solvent loss during fusion.

Note that vinyl chloride monomer (VCM) is not expected to be present in the emissions in levels that even approach regulatory permissible exposure levels. The polyvinyl chloride (PVC) resins used contain only trace amounts (typically <8 ppm) of VCM. No additional VCM should be generated during fusion.

Fusing vinyl screen printing inks requires mechanical exhaust sufficient to remove the smoke generated. In a properly ventilated workplace, the emissions should not present a significant health problem. However, regulatory thresholds and analytical monitoring of your process should be utilized to determine that your company does not, in any way, harm its employees or the environment.

The following information is provided as a starting point in determining emissions generated during the fusion of vinyl screen printing inks. Please remember that all numbers are estimates for reasonably anticipated by-products and are not the result of laboratory analysis on the vinyl screen printing inks in your process.

- o Vinyl screen printing inks are typically less than 1% volatile by weight, but the volatility depends on factors such as the fusion temperature, the duration of the fusion process, the amount of ink used, etc. Assuming the ink is 1% volatile by weight, the composition of that 1% (i.e. the smoke) may be assumed to be:

- 99.0% Plasticizers (i.e. diisodecyl ester)

- 0.9% Alcohol breakdown products from the plasticizer (i.e. isodecyl alcohol from the diisodecyl ester)

- 0.1% HCl (hydrogen chloride from the PVC resin)

NOTE: To accurately characterize air emissions from your process, analytical emissions monitoring should be performed.

- o Therefore, based on the total pounds of vinyl screen printing ink that you use per year, you can assume that:

- 0.99% plasticizer
 - 0.009% alcohol from the plasticizer
 - 0.001% HCl

For vinyl screen printing inks that have had solvent added, the theoretical percent volatile will be comprised of the 1% byproducts discussed above plus the amount of solvent.

- o These numbers do not take into account any emissions control devices that you may have on your process.
- o As a final note, when a vinyl screen printing ink is “overfused” to the point that yellowing or burning occurs, a much larger amount of smoke is generated. This smoke would contain a higher level of HCl since the yellowing or burning indicates a degradation of the PVC in the ink.

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