



5 August 2021

Ms. Shannon Kohler, Director - Environmental Approvals Branch
Manitoba Conservation and Climate
1007 Century Street
Winnipeg, MB R3H 0W4

RE: Color Ad Packaging – 630 Kernaghan Avenue, Winnipeg Manitoba
Environment Act Proposal

Dear Ms. Kohler,

Color Ad Packaging is making an application under *The Environment Act* (the Act) for the engraving facility (the Facility) located at 630 Kernaghan Avenue in Winnipeg Manitoba. The Facility is considered a Class 2 Development under the *Classes of Development Regulation* of the Act. The Facility has been operating for the past two years. MCC visited the Facility in early 2021 and noted that the Facility was not licenced as per the requirements of the Environment Act, hence this application to make the Facility compliant with the legislative requirements.

In fulfillment of Manitoba Conservation and Climate requirements, this cover letter, a filled-out EAP form, and one electronic copy of the EAP report will be submitted to MCC. Two (2) 2 hard copies of the detailed EAP report will be couriered to the MCC office. The \$7,500 application fee will be paid by credit card.

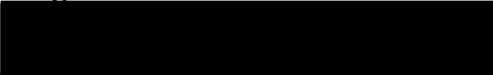
Should you have any questions, please do not hesitate to contact the undersigned or Fiona Scurrah at Wood Environment & Infrastructure Solutions (jamie.ziegler@woodplc.com, 204-488-2997 who is coordinating our Notice of Alteration submission.

Sincerely,

[Redacted Signature]
Anna Ronald
Human Resource / Health & Safety Manager

Environment Act Proposal Form



Name of the development: Color Ad Packaging Ltd., 630 Kernaghan Avenue Rotogravure Engraving Facility	
Type of development per Classes of Development Regulation (Manitoba Regulation 164/88): Class 2 - manufacturing	
Legal name of the applicant: Color Ad Packaging Ltd.	
Mailing address of the applicant: 200 Beghin Ave.	
Contact Person: Anna Ronald	
City: Winnipeg	Province: MB Postal Code: R2J 3W2
Phone Number: (204) 777-7770 Fax: (204) 777-5545 email: aronald@colorad.ca	
Location of the development: 630 Kernaghan Ave	
Contact Person: Anna Ronald	
Street Address: 630 Kernaghan Ave	
Legal Description:	
City/Town: Winnipeg	Province: MB Postal Code: R2J 3W2
Phone Number: (204) 777-7770 Fax: (204) 777-5545 email: aronald@colorad.ca	
Name of proponent contact person for purposes of the environmental assessment: Jamie Ziegler, Wood Environment and Infrastructure Solutions	
Phone: (204) 488-2997 Fax:	Mailing address: 440 Dovercourt Dr Winnipeg, MB R3Y 1N4
Email address: jamie.ziegler@woodplc.com	
Webpage address:	
Date: 2021-07-26	Signature of proponent, or corporate principal of corporate proponent:  Printed name:

PRINT

RESET

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)

**Per Environment Act Fees Regulation
(Manitoba Regulation 168/96):**

Class 1 Developments	\$1,000
Class 2 Developments	\$7,500
Class 3 Developments:	
Transportation and Transmission Lines ..	\$10,000
Water Developments	\$60,000
Energy and Mining.....	\$120,000

Submit the complete EAP to:

Director
Environmental Approvals Branch
Manitoba Sustainable Development
1007 Century Street
Winnipeg, Manitoba R3H 0W4

For more information:

Phone: (204) 945-8321

Fax: (204) 945-5229

<http://www.gov.mb.ca/sd/eal>



Environment Act Proposal

28-630 Kernaghan Avenue, Winnipeg, Manitoba
Engraving Facility
WX19388
5 August 2021



Environment & Infrastructure Solutions
 440 Dovercourt Drive, Winnipeg Manitoba, Canada R3Y 1N4
 Phone: (204) 488-2997
www.woodplc.com

Environment Act Proposal
28-630 Kernaghan Avenue, Winnipeg, Manitoba
Wood Project Number - WX19388

Prepared for:	Color Ad Packaging Ltd 200 Beghin Avenue Winnipeg, Manitoba R2J 3W2		
Contacts:	Roger Dheilly, COO Anna Ronald, Human Resources / Health & Safety Manager		
Report Distribution:			
Color Ad Packaging Ltd:	Anna Ronald, Human Resources / Health & Safety Manager		
Wood:			
	Name	Job Title	Signature
Prepared by:	Jamie Ziegler, B.Sc.	Environmental Scientist	
Reviewed by:	Fiona Scurrah, M.Sc.	Senior Environmental Scientist	
Project Manager:	Fiona Scurrah, M.Sc.	Senior Environmental Scientist	
Rev.	Date	Revision Notes	
	5 August 2021	Final	
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Executive Summary

Color Ads Packaging Ltd. (Color Ad), has since 2019 operated a rotogravure cylinder engraving facility (the Facility), located at 28-630 Kernaghan Avenue in Winnipeg, Manitoba (the Site). In early 2019, Manitoba Conservation and Climate's Enforcement Branch inspected the Site and determined that it was required to be licenced as a Class 2 Development, as per Manitoba Regulation 163/88, the Classes of Development Regulations, made pursuant to the *Environment Act*. The Facility operates a rotogravure cylinder engraving facility for Color Ad's flexible packaging and labelling product manufacturing facility which is located approximately 3.2 km to the southwest at 200 Beghin Avenue in Winnipeg, Manitoba. The Facility creates cylinders with the engraved images that need to be printed. The engraving process will be created on the cylinder surface and the cells that will contain the ink order to transfer it to the paper. Cylinders are made of steel and plated with copper. The desired pattern is achieved by engraving with a diamond tool. Following the engraving process, the cylinder is chromed and proofed for verification. The cylinder is will then be released to the converting facility when all confirmed criteria has been met. Potential environmental impacts related to the operation of the Facility include:

- Noise due to increased truck traffic to the Facility;
- Air emissions due to increased truck traffic to the Facility; and
- Volatile organic compounds emissions from the operation of the engraving equipment.

Given the location of the facility in a manufacturing zoned area of the City of Winnipeg and the distance to the nearest residential property of approximately 250 m to the north, these effects are considered negligible.

There are no proposed changes to the current operations at the Facility.

This EAP application seeks to bring the Facility into compliance with the Licensing Procedures Regulations, Manitoba Regulation 163/88 and as per the 11 February 2021 MCC letter.

This report is structured in accordance with the requirements of the Licensing Procedures Regulations (Manitoba Regulation 163/88) and specifically the Information Bulletin – Environment Act Proposal Guidelines dated March 2018 issued by the Environmental Approvals Branch.

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1.0 Introduction

Color Ad Packaging Ltd., (Color Ad) retained Wood Environment & Infrastructure Solutions, a division of Wood Canada Limited (Wood), to undertake an *Environment Act* Proposal (EAP) for Color Ad's rotogravure cylinder engraving facility (the Facility), located at 28-630 Kernaghan Avenue in Winnipeg, Manitoba (the Site).

1.1 Project Overview

Since December 2019, Color Ad had began operating its in-house rotogravure cylinder engraving facility at 28-630 Kernaghan Avenue for Color Ad's flexible packaging and labelling product manufacturing facility which is located approximately 3.2 km to the southwest at 200 Beghin Avenue in Winnipeg, Manitoba. The Site is shown in Figure 1.

Photos of the existing facility are shown in Appendix A.

The Facility creates cylinders with the engraved images that need to be printed. The engraving process will be created on the cylinder surface and the cells that will contain the ink order to transfer it to the paper. Cylinders are made of steel and plated with copper. The desired pattern is achieved by engraving with a diamond tool. Following the engraving process, the cylinder is chromed and proofed for verification. The cylinder is will then be released to the converting facility when all confirmed criteria has been met. The Proponent

The Project proponent information is shown in Table 1-1.

Table 1-1: Project Proponent Information

Name of Project	Additional Printing Presses and Laminator
Name of Proponent	Color Ad Packaging Ltd.
Address of Proponent	200 Beghin Avenue, Winnipeg, Manitoba
Proponent Contact Person	Anna Ronald, Human Resources / Health & Safety Manager Color Ad Packaging Ltd. 200 Beghin Avenue, Winnipeg, Manitoba R2J 3W2 Office: +1 (204) 777-7770 Ext: 220 Mobile: +1 (204) 227-8481 Email: aronald@colorad.ca
Principal Contact Person(s) for this Environment Act Proposal (i.e., Consultant)	Jamie Ziegler, B.Sc. Environmental Scientist Wood Environment and Infrastructure Solutions 440 Dovercourt Drive, Winnipeg, Manitoba, CA. R3Y 1N4 Office: +1 (204) 488-2997 Email: jamie.ziegler@woodplc.com

1.2 Company Profile

Color Ad Packaging Ltd. is located in Winnipeg, Manitoba.

1.2.1 Land Ownership and Property Rights

The Site is currently owned by Lexington Real Estate Holdings Ltd. Color Ad leases the building for their operation. The legal description of the Site is:

- All that portion of SW ¼ 5-11-4 EPM, shown ordered pink on plan 7048 WLTO, contained within the limits bordered pink on plan 11069 WLTO

At the time of writing the Certificate of Title had not yet been received and is not included in this EAP.

1.3 Purpose of the Project

The purpose of the Project is to compile an *Environment Act* Proposal for Color Ad's rotogravure engraving facility. Manitoba Conservation and Climate (MCC) in a 11 February 2021 letter requested that Color Ad submit an EAP for the Facility in pursuit of compliance with the Manitoba *Environment Act*.

1.4 Regulatory Framework

As the Facility is classified as a manufacturing and industrial plant, it constitutes a Class 2 Development per the *Classes of Development Regulations 164/88* (the Regulation) of the *Environment Act*.

1.5 Funding

All costs required for the operation of the engraving division for Color Ad's flexible packaging and labelling product manufacturing facility are funded by Color Ad.

2.0 Description of Development

2.1 Site and Surrounding Land Use Description

The Site is located at Unit 28 – 630 Kernaghan Avenue, near the southwest intersection of Kernaghan Avenue and Hoka Street, in the Transcona Yard Neighbourhood of the Transcona Ward of Winnipeg, Manitoba.

According to the City of Winnipeg Citizen's Information Service, the Site is zoned as Manufacturing – General (M2). The Site currently consists of a large manufacturing building with a asphalt-covered parking lot. According to the City of Winnipeg Assessment & Taxation Department, the property use for the Site is INMLM (Industrial Light Manufacturing).

The surrounding land consisted of commercial and manufacturing uses, is described in Table 2-1 below.

Table 2-1: Surrounding Land Use

North	Kernaghan Avenue followed by various commercial / manufacturing facilities including Burnbrae Farms and New Flyer Industries.
South	Rail line followed by various commercial properties including Vickar Isuzu Trucks and Armtex.
East	Palliser Factory Outlet warehouse followed by Hoka Street, and manufacturing facilities beyond including Creative Door Services Ltd.
West	Vacant parcel of land followed by Freshwater Fish (processing facility).

2.2 Land Use Designation

According to the City of Winnipeg Citizen's Information Service, the Site and adjacent properties are zoned "M1" for manufacturing-light.

2.3 Development Use

The main operations at the Facility include manufacturing rotogravure cylinders in support of its flexible packaging and labelling product manufacturing facility, located 3.2 km to the southwest of the Site.

The Facility creates cylinders with the engraved images that need to be printed. The engraving process will be created on the cylinder surface and the cells that will contain the ink order to transfer it to the paper. Cylinders are made of steel and plated with copper. The desired pattern is achieved by engraving with a diamond tool. Following the engraving process, the cylinder is chromed and proofed for verification. The cylinder is will then be released to the converting facility when all confirmed criteria has been met.

Color Ad operates the facility during the hours of 7:30 am to 3:30 pm, Monday to Friday.

Color ad has an established and documented Health and Safety Plan and an Emergency Response Plan based on corporate protocols and customized for the Kernaghan Avenue facility and location. The Site Health and Safety Plan is provided in Appendix C and Fire Safety Evacuation Procedure is provided in Appendix D.

2.4 Public Advertising

As per the requirements of the Licensing Procedures Regulations (Manitoba Regulation 163/88) and specifically the Information Bulletin – Environment Act Proposal Guidelines dated March 2018, a notice, describing the operation of the facility will be published in local newspapers. There is a thirty-day period granted to the public to provide comments or concerns on the project to Manitoba Conservation and Climate.

3.0 Description of Existing Environment

3.1 Biophysical Environment

3.1.1 Ecological Land Classification

The Site is in the Prairies Ecozone, Lake Manitoba Plains Ecoregion and the Winnipeg Ecodistrict. The Winnipeg Ecodistrict occupies most of the southeast portion of the Lake Manitoba Plains Ecoregion.

3.1.2 Climate

Winnipeg climate is characterized by a strong seasonal pattern of both temperature and precipitation. The normal location of the Mid-Latitude Winter-Dry climate is in the interior of the continents in the mid-latitudes. This continental location causes a large annual temperature range because of continentality.

This climate receives Maritime Tropical air masses in the summer with occasional Continental Tropical air masses. Summers are hot and humid with intense summer convectional storms. Continental Polar air masses are dominant in the winter with an occasional outbreak of Maritime Polar air. Continental Polar air masses are associated with cold, dry weather conditions. Precipitation mainly occurs in the summer from thunderstorm activity. The mid-latitude cyclone produces a smaller quantity of precipitation in the winter (Physicalgeography.net).

There are 40 weather stations located in the City of Winnipeg. According to Environment Canada's Website, the mean annual temperature within the Winnipeg area is 2.6°C with a maximum daily average temperature of 25.8°C and a minimum daily average temperature of -22.8°C. The annual precipitation is reported as 513.7 mm.

3.1.3 Geology and Groundwater

Based on available geological maps, the subsurface stratigraphy in this area of Winnipeg normally consists of topsoil and fill materials underlain by glacio-lacustrine silt and clay to a depth of about 12 to 15 m from grade. A deposit of silty till, typically several metres thick, occurs between the clay and the underlying bedrock. The bedrock in this area consists of mottled, fossiliferous dolomitic limestone and is of the Selkirk member (Baracos et al., 1983). Bedrock is expected to be encountered at depths ranging from 15 to 18 m from grade.

Fractured zones in the bedrock comprise the major aquifer in the area. There are no aquifers above the bedrock. Given the substantial clay thickness, the potential for impacts to the aquifer, from on or off-Site sources is low.

3.1.4 Topography and Surficial Drainage

The Site is in the physiographic division of the Manitoba Lowland within the Red River Plain district.

The Manitoba Lowland is characterized by relatively flat to gently undulating relief. In the area of the City of Winnipeg, ground surface elevation does not vary more than a few metres with exception of the Red River and Assiniboine River's banks and man-made structures (e.g., Red River Floodway). The area of the Site is extremely flat with less than 1 m of elevation difference for hundreds of metres in extent.

The topography of the Site appears flat. Surface drainage in the vicinity of the Site consists of gently sloped landscaping towards associated catch basins observed within the parking lot and adjacent roadways. The catch basins are attached to the City of Winnipeg Sewer system.

3.1.5 Surface Water Bodies

There are no surface water bodies located within the Site. The closest surface water body is the Seine River, located approximately 6 km west of the Site. The project site will not affect the surface water bodies.

3.1.6 Vegetation

During the Site reconnaissance, completed as part of the EAP, the ground surface was predominately asphalt. The area surrounding the Site building consisted of low-lying vegetation.

The Manitoba Conservation Data Centre (MBCDC) maintains a list of plant species of conservation concern in the province. A MBCDC search was conducted and there are no known threatened or endangered plant species in the Site area, nor is growth expected due to the industrial use of the Site.

3.1.7 Wildlife, Amphibians, Reptiles, and Terrestrial Invertebrates

Mammals and birds that may be observed within manufacturing areas of Winnipeg include rodents and common bird species such as crows, robins, and Canada geese. There is the potential for amphibians and reptiles to be present in neighbouring ditches and low-lying areas adjacent to the site.

The Manitoba Conservation Data Centre (MBCDC) maintains a list of wildlife and invertebrate species of conservation concern in the province. The Site is in a zoned industrial / manufacturing use area and the potential to encounter wildlife, terrestrial invertebrates, amphibians, and reptile species of concern in the project area is low. The proposed project will not impact the low-lying areas and therefore the effect to invertebrates, amphibians and reptiles is negligible.

There are no wildlife management areas or ecologically significant areas within 2 km of the Site.

3.1.8 Aquatic Species and Habitat

There are no major water bodies located at the proposed site. The nearest water body is the Seine River, located approximately 6 km west of the Site. The project site will not affect the surface water body or aquatic species within the Seine River.

3.2 Socio-Economic

3.2.1 Recreation

There are no federal, provincial, or municipal parks located on or immediately adjacent to the Site. The closest municipal park is the Jurkowski Memorial Park located approximately 500 m northwest and the Barry Tot Lot, located approximately 550 m west of the Site. The Transcona Golf Club is located approximately 450 m south of the Site.

3.2.2 Heritage Sites

According to the Manitoba Government's provincial heritage website, and the Manitoba Historical Society website, and Winnipeg Municipal heritage website, the closest designated heritage site is the Melrose Park / Jurkowski Memorial Park at 722 Melrose Avenue West, approximately 500 m northwest from the Site.

3.2.3 First Nations

The nearest First nation community to the City of Winnipeg is the Swan Lake First Nation Reserve Land 8a, located in Rural municipality of Headingley, Manitoba. It should be noted that at the time of this application, the former Canadian Forces Base Kapyong Barracks, located at Kenaston Boulevard, was sold to Treaty 1 First Nations group to be redeveloped into an urban reserve. However, the Kapyong Barracks are located more than 10 km from the Site.

3.2.4 Schools

There are no schools located within one kilometre of the Site.

3.2.5 Residential

The nearest residential neighbourhood is located approximately 250 m north of the Site.

4.0 Description of Potential Environmental Effects and Mitigation Measures

The following outlines potential effects on the physical, biophysical, and socio-economic environment that may occur from the operation of the manufacturing of rotogravure cylinders. Mitigation measures for any potential effects identified are also discussed in the following sections.

4.1 Emissions

4.1.1 Air Emissions

Air emissions that may result from the operation of Color Ad's engraving facility, include emissions that may be generated from the facility heating and cooling system and those generated by increased truck traffic transporting the engraved cylinders. Mitigation measures include:

- Ensuring the heating and cooling systems are properly maintained as well as inspected and serviced when not in proper working order.
- Ensuring transport vehicles for the engraved cylinders are in proper working condition

No other emissions will be generated by Color Ad's engraving facility.

4.1.2 Noise Emissions

There is the potential for additional noise to be generated from the slight increase in truck traffic that will be generated because of Color Ad's engraving facility.

Given the location of the facility in a manufacturing zoned area of the City of Winnipeg and the distance to the nearest residential property of approximately 250 m to the north, effects from noise emissions are considered negligible.

4.1.3 Volatile Organic Compounds Emissions

For the purposes of this assessment, all VOCs used at the facility (based on the 2020 purchasing records) were assumed to be emitted.

As provided by the Client, Table 4-1 illustrates the VOCs purchased and released that have been monitored in 2020.

Table 4-1: Annual VOCs Mass Balance in Kilograms, Purchased & Released

VOC		January to March	April to June	July to September	October to December	Total
Sulphuric Acid	Purchased	205	233	249	222	908
	Released	153	176	178	171	678
Chromium Trioxide	Purchased	35	40	39	38	153
	Released	18	21	23	19	81

4.2 Hazardous and Non-Hazardous Chemical Use and Storage

Chemicals used and stored at the Site in the manufacturing facility are noted in Table 4-2 and Table 4-3 provides data on the number of releases related to these chemicals usage during 2020.

Table 4-2: Summary of Site Chemicals, Use and Storage

SUMMARY OF SITE CHEMICAL USE AND STORAGE			
Name	Use	WHMIS Classification	Storage Location
Nickel Pro 310	Nickel Tank	N/A	Inventory Room
Nickel Pro 100 - WA	Nickel Tank	N/A	Inventory Room
Mist suppressant	Chrome Tank	N/A	Inventory Room
Copper pro DFG Maintenance	Copper Tank	N/A	Inventory Room
Copper DFG Hardener	Copper Tank	N/A	Inventory Room
Copper Pro DFG Make-up	Copper Tank	N/A	Inventory Room
Chrome elite RI	Chrome Tank	D1B/D2A/E	Inventory Room
Sulphuric 50%	Chrome / Copper / Decrome	1A/1	Inventory Room
Caustic Soda 10 – 50%	Wastewater	E	Inventory Room
Mar Fe 200	Wastewater	E	Inventory Room

Safety Data Sheets (SDS) for these chemicals are provided in Appendix F. All chemicals used and stored at the Site are effectively controlled, additionally, all personnel are Workplace Hazardous Materials Information System (WHMIS) trained. Additional information regarding general practices and procedures for the Site is included in the Site Health and Safety Booklet, included in Appendix C.

Table 4-3: Summary of Releases for 2020

VOC		January to March	April to June	July to September	October to December	Total
Copper Pro Maintenance - 10%	Purchased	45	45	45	45	180
	Released	7.5	7	8	7.5	30
Sulphuric Acid	Purchased	4.5	4.5	4.5	4.5	18
	Released	0.75	0.7	0.8	0.75	3
Nickel Pro 100 - 4%	Purchased	10	10	10	10	40
	Released	3	4	4	4	15
4-undeconal, 7-ethyl-2-methyl Sulphate, sodium salt	Purchased	0.4	6.5	6.5	6.5	19.9
	Released	0.12	2.6	2.6	2.6	7.92
Diethylene glycol ethyl ether	Purchased	0.2	2.5	2.5	2.5	7.7
	Released	0.06	1	1	1	3.06
Sodium Chloride	Purchased	0.02	0.7	0.7	0.7	2.12
	Released	0.006	0.28	0.28	0.28	0.846
Chrome Pro Elite RL - 35%	Purchased	100	115	112	109	436
	Released	52	59	65	55	231
Chromium Trioxide	Purchased	35	40.25	39.2	38.15	152.6
	Released	18.2	20.65	22.75	19.25	80.85
Sulfuric Acid 50% - 50%	Purchased	400	456	489	435	1780
	Released	305	350	355	340	1350
Sulphuric Acid	Purchased	200	228	244.5	217.5	890
	Released	152.5	175	177.5	170	675
Total	Purchased	795.12	908.45	953.9	868.85	3526.32
	Released	539.136	620.23	636.93	600.38	2396.676

4.3 Hazardous and Non-Hazardous Waste

MCC defines hazardous wastes, with certain exceptions, in general as 'waste dangerous goods' from the use of familiar products that households and businesses use every day. Hazardous waste can include waste paint, paint thinners, oil, oil filters, batteries, and cleaning chemicals, among many others. If the product has a dangerous goods safety mark (label) on the packaging, the waste product is more than likely a hazardous waste.

Currently, the Site produces industrial wastewater from rinsing of the cylinders of chemicals (nickel, copper, chrome). The hazardous wastes are stored in 1000 L totes, which is subsequently pumped out by Miller Environmental on a regular basis.

4.4 Industrial and Sanitary Wastewater Effluent

Currently, there is no industrial waste effluent produced at the facility that discharges into the City of Winnipeg municipal wastewater system. The sanitary facilities from the Site are connected municipal wastewater system.

As discussed in Section 4.3, the Site produces industrial wastewater from the rinsing of the cylinders. The facility is in the process of developing an Electroplating Plant Revised Wastewater Treatment System. The system will subsequently treat the wastewater prior to being discharged into the municipal system. The system is expected to be completed in September 2021.

4.5 Climate

The operation of the Color Ad's engraving facility will have no effects on the climate or greenhouse gas emissions. Although there is the potential for a slight increase in traffic in the area, the number of trucks transporting the engraved cylinders will be minimal with respect to the number of vehicles currently used for other reasons in the area (i.e., commercial, residential, retail, industrial). Air emissions (exhaust) produced from the trucks are considered negligible.

4.6 Stormwater Management

Surface drainage in the vicinity of the Site consists of gently sloped landscaping associated catch basins observed within the parking lot and adjacent roadways. The catch basins are attached to the City of Winnipeg Sewer system.

Based on the facilities at the Site, there does not appear to be a concern for environmental effects with regards to storm water.

4.7 Wildlife and Vegetation

As the location Color Ad's engraving facility will be in an existing manufacturing area, and that the existing site is predominantly asphalt with tree and low-lying vegetation there are no anticipated effects to any wildlife or vegetation species of conservation concern.

4.8 Aquatic Habitat

There are no water bodies located in the Site, the facility will have no effects on any aquatic species or aquatic habitats. There is the potential for amphibians and reptiles to be present in the surrounding off-site land. However, no effect to amphibians or reptiles are anticipated due to the operation of Color Ad's engraving facility.

As a result of the ground surface consisting predominately of asphalt, with trees and low-lying vegetation in the surrounding area, potential effect to terrestrial invertebrate species of concern is negligible.

4.9 Socio-Economic Effects

Socio-economic effects that are anticipated because of the project include increased traffic and economic benefits.

4.9.1 Traffic

Increased traffic may result from the addition of transport trucks used for the delivery and hauling away of raw materials and finished product. It is anticipated that the number of additional vehicles/trucks will be minimal and therefore are negligible because of additional cars/truck would occur from new residents or workers from other industries accessing the area.

4.9.2 Economic Benefits

The operation of Color Ad's engraving facility may have a positive effect by way of job creation and employment. Surrounding amenities such as restaurants can benefit from the employees that currently work at the engraving facility. The facility provides 7 full time positions.

4.10 Health and Safety

There is the potential for workers on-Site to be affected if potential spills of chemicals and hazardous waste stored on-Site occur. The following mitigation measures will be adhered to minimize potential effects:

- Employees will ensure they review and understand the Safety Data Sheets (SDS), posted at the Site for all hazardous materials and chemicals stored on-Site.
- Employees will review and adhere to the Health and Safety Plan is provide in Appendix B and the Fire Safety Evacuation Procedure is provided in Appendix D.

4.11 Residual Effects

There are no anticipated residual effects as a result of Color Ad's operation of its in-house rotogravure cylinder engraving facility.

5.0 Follow-Up Plans

Based on the type and operation of the facility, limited potential for environmental impacts, and the controls that are currently in place, no further follow-up plans are anticipated. Based on Wood's review, the importance of environmental compliance is well defined and acknowledged by Color Ad personnel. Company and Site documentation appears to be well maintained and accessible. It was reported to Wood that the Site is kept secured and managed. Chemical inventory is clearly identified, located, and stored, MSDS and emergency information is easily accessible, and personnel are WHMIS trained.

In the future, a Site closure plan would be developed to address all the necessary environmental requirements in the event of future plant decommissioning.

As the Facility is not anticipated to cause any effects to the biophysical or socio-economic environments adjacent to the Site.

6.0 Conclusions

This environmental assessment has been prepared for Color Ad to support the application with will be completed in order to receive a licence for the continued operation of its in-house rotogravure cylinder engraving facility.

7.0 Closure

This report has been prepared for the exclusive use of Color Ad Packaging Ltd. This report is based on, and limited by, the interpretation of data, circumstances, and conditions available at the time of completion of the work as referenced throughout the report. It has been prepared in accordance with generally accepted assessment practices. No other warranty, expressed or implied, is made. General limitations are provided in Appendix G.

8.0 References

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Figures

Figure 1: Site Plan

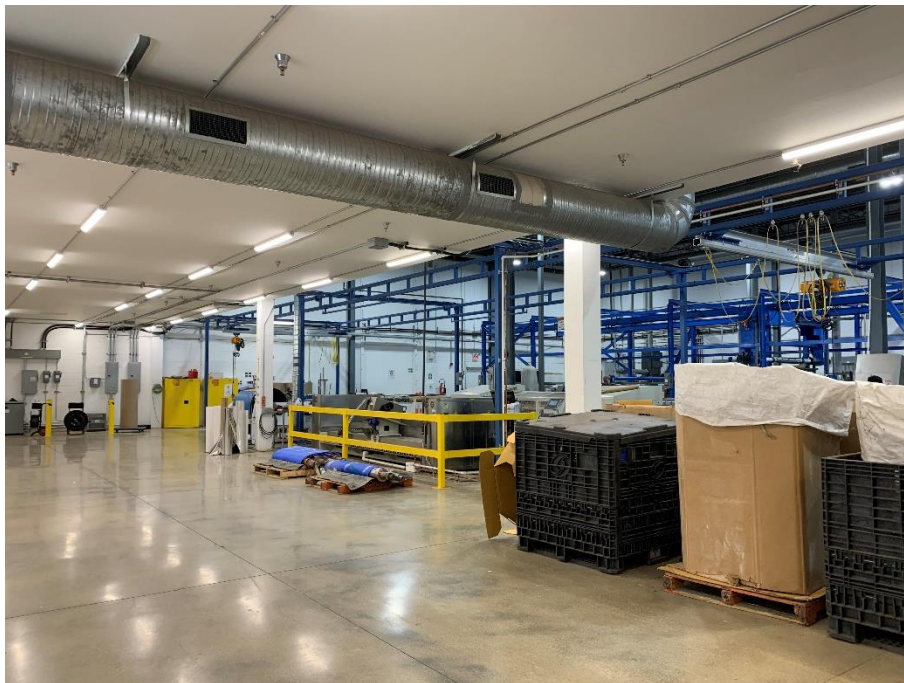
Figure 2: Site and Surrounding Land Use Plan

Appendix A

Site Photos



PHOTOGRAPH 1: Exterior of Site building.



PHOTOGRAPH 2: General overview interior of manufacturing area.

wood.

SITE PHOTOGRAPHS

Date Taken
9 JUNE 2021

COLOR AD PACKAGING LTD.
ENVIRONMENT ACT PROPOSAL
28-630 KERNAGHAN AVENUE, WINNIPEG, MB

Project No.
WX19388

Figure 1



PHOTOGRAPH 3: Hazardous wastewater stored in 1000 L totes, prior to being pumped by Miller Environmental.



PHOTOGRAPH 4: General building materials observed within Site building.

wood.

SITE PHOTOGRAPHS

Date Taken
9 JUNE 2021

COLOR AD PACKAGING LTD.
ENVIRONMENT ACT PROPOSAL
28-630 KERNAGHAN AVENUE, WINNIPEG, MB

Project No.
WX19388

Figure 2



PHOTOGRAPH 5: General building materials observed within Site building.



PHOTOGRAPH 6: Chemical storage.

wood.

SITE PHOTOGRAPHS

Date Taken
9 JUNE 2021

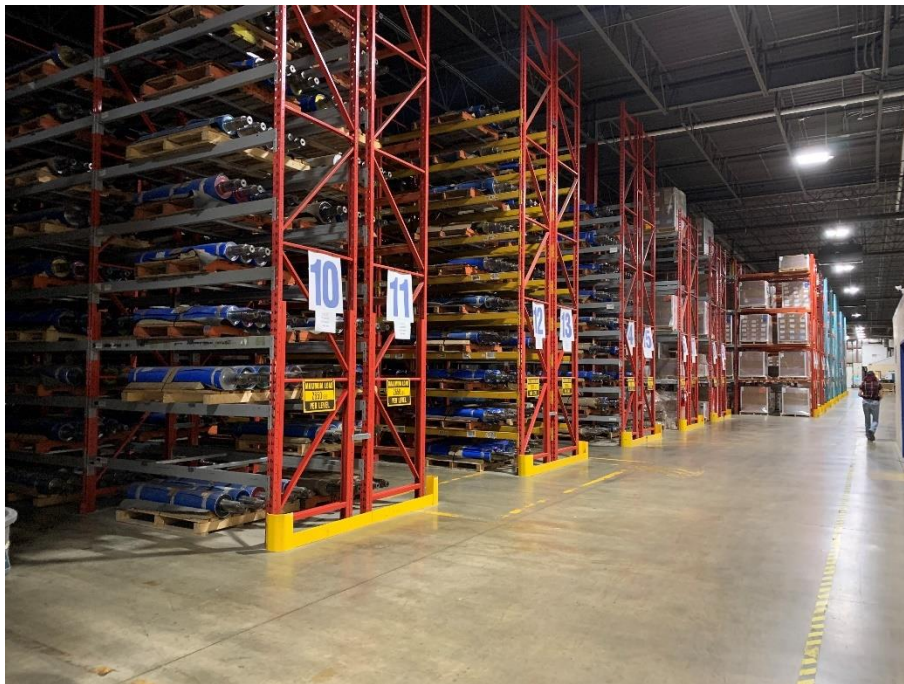
COLOR AD PACKAGING LTD.
ENVIRONMENT ACT PROPOSAL
28-630 KERNAGHAN AVENUE, WINNIPEG, MB

Project No.
WX19388

Figure 3



PHOTOGRAPH 7: Warehouse.



PHOTOGRAPH 8: Warehouse.

wood.

SITE PHOTOGRAPHS

Date Taken
9 JUNE 2021

COLOR AD PACKAGING LTD.
ENVIRONMENT ACT PROPOSAL
28-630 KERNAGHAN AVENUE, WINNIPEG, MB

Project No.
WX19388

Figure 4



PHOTOGRAPH 9: Employee locker area.



PHOTOGRAPH 10: Graphic design station.

wood.

SITE PHOTOGRAPHS

Date Taken
9 JUNE 2021

COLOR AD PACKAGING LTD.
ENVIRONMENT ACT PROPOSAL
28-630 KERNAGHAN AVENUE, WINNIPEG, MB

Project No.
WX19388

Figure 5

Appendix B

Health and Safety Plan

	<u>POLICIES AND PROCEDURES</u>		Page: 1 of 7
	Document# ERP-14	Published date: 2009	
	Pre-Approval: Employee Relations	Last revision date: Jan 2, 2019	
	Final Approval: COO	Next review date: Jan 2, 2021	
	Department: Employee Relations	Version: 9 [Approved]	
	Subject: Safety & Health		

Policy

- It is Color Ad's intent and policy to provide a safe and healthy work environment for its employees.
- Color Ad believes that injuries can be prevented and that the Company and its employees will accept responsibility for safety, and for the safety of those with whom they work.
- Color Ad Packaging has a Safety Program and will allocate the necessary resources to ensure a safe and healthy work environment.

Scope

This policy applies to all the employees of Color Ad.

1.0 Procedures

1.1 Safety is Everyone's Responsibility:

- 1.1.1 Safety is a joint venture between the Employer and the employees.
- 1.1.2 Employees are expected to take an active part in maintaining a safe working environment.
 - 1.1.2.1 They must observe all safety rules, adhere to all safety instructions, and use safety equipment where required.
 - 1.1.2.2 An employee's workplace must be kept neat and clean at all times.

1.2 Safety Equipment:

- 1.2.1 It is every employee's responsibility upon receiving training to learn the location of all safety and emergency equipment and to report any defects in the equipment.

1.3 Reporting Safety Concerns:

- 1.3.1 Employees have a duty to report any unsafe practices or breaches of safety procedures to their Supervisor.

1.4 Discipline for Failure to Comply With Safety Regulations:

- 1.4.1 Any employee who refuses to comply with the Safety Procedures in place will be subject to disciplinary action, up to and including termination of employment in accordance with Color Ad's Discipline Policy [Doc# ERP-16].
- 1.4.2 Any employee who deliberately disengages any safety device will be subject to immediate termination.

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	Final Approval: COO	Next review date: Jan 2, 2021	
	Department: Employee Relations	Version: 9 [Approved]	
	Subject: Safety & Health		

1.5 Fire Alarm Procedure:

- 1.5.1 Emergency evacuation plans are located in strategic locations in each area of Color Ad.
 - 1.5.1.2 Employees of Color Ad should become familiar with these plans as well as the location of fire alarm stations, emergency exits, and fire extinguishers in their area.
- 1.5.2 In the event that the building needs to be evacuated for any reason, a fire alarm will be activated.
- 1.5.3 **If You Discover Smoke or Fire**
 - 1.5.3.1 Attempt to extinguish the fire only if the fire is small and you can do so safely.
 - 1.5.3.2 Keep yourself between the fire and an exit.
 - 1.5.3.3 If the fire cannot be extinguished, vacate the fire area, closing all doors behind you.
 - 1.5.3.4 Activate the nearest fire alarm pull station (Alarm will alert the Fire Department).
 - 1.5.3.4.1 Warn people in the vicinity.
 - 1.5.3.4.2 Evacuate the building via the nearest safe exit.
- 1.5.4 **On Hearing the Fire Alarm**
 - 1.5.4.1 If a fire alarm has been activated, make your way to the nearest exit and leave the building.
 - 1.5.4.2 Supervision will ensure that all employees are out of the offices and laboratories before leaving.
 - 1.5.4.2.1 If time permits, close doors upon leaving the room.
 - 1.5.4.3 Continue to move out of the building in an orderly manner even if the alarm stops sounding.
 - 1.5.4.3.1 Never return for personal items left behind.
- 1.5.5 **Upon Exit of the Building**
 - 1.5.5.1 Once outside, stay clear of the building.
 - 1.5.5.2 All employees will meet on the east side of the building (towards Beghin Ave.).
 - 1.5.5.3 A head count will be done by department supervision.
 - 1.5.5.3.1 After all employees are accounted for, supervision will move forward as needed.

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1.5.5.4 Do NOT re-enter the building until authorized by the Fire Department or supervision.

1.5.6 **Also see the following documents for detailed procedures**

1.5.3.1 **Document# ERP-25** - Emergency Evacuation &

1.5.3.2 **Document# ERP-26** - Fire Safety Evacuation

1.6 **Personal Hygiene Requirements:**

1.6.1 Your personal hygiene is very important.

1.6.1.1 Personal hygiene is a set of practices performed for the preservation of health and proper caring for our body.

1.6.1.1.1 Personal hygiene is very important. All staff are expected to maintain a high degree of personal cleanliness.

1.6.2 **Hands:** Employees must wash hands before beginning work, and after eating, drinking, smoking, using the restroom, or otherwise soiling hands.

1.6.2.1 Employees are encouraged to use company-provided hand sanitizer periodically.

1.6.2.2 Employees are subject to random hand swabbing to ensure proper personal hygiene.

1.6.2.3 Employees are encouraged to practice good personal hygiene at all times.

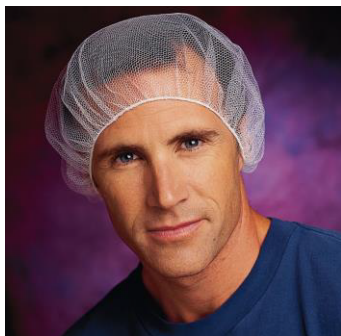
1.6.3 **Nails:** Keep fingernails clean and neatly trimmed.

1.6.3.1 Dirty nails are a popular place for bacteria to hide and grow.

1.6.3.2 Nail polish and / or false nails are not permitted in the production area.
[The polish may flake off and contaminate the product.]

1.6.4 **Hair:** You must wear a protective hair net in the production area.

1.6.4.1 There must be no exposed or loose hair protruding from under a hairnet. Hair net must cover ears (see photo below).



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1.6.4.2 A beard net must be worn if facial hair is over ¼ inch in length.
[See Facial Hair Policy **Doc# ERP-27.**]

1.6.5 No person with boils, sores, infected wounds or any other infections or communicable disease is permitted to contact packaging as defined by Municipal, Provincial or Federal law.

1.6.6 All exposed cuts and grazes / skin abrasions are to be covered by a facility-issued detectable metal strip bandage.

1.6.6.1 In case of hand injuries, in addition to a plaster / bandage, a single-use glove shall be worn.

1.7 **Personal Protective Equipment:**

1.7.1 In accordance to the Occupational Health and Safety Act Part 6.5(1) (a-c), the worker must use or wear the protective equipment, protective devices and clothing specified by the management of the company.

1.7.2 The following safety guidelines should be adhered to, to maximize worker health and safety:

1.7.2.1 Always inspect the personal protective equipment (PPE) prior to use.

1.7.2.2 Wear only the type of PPE specified by the Supervisor as appropriate for the job.

[Inappropriate and improperly worn PPE can result in injury, illness and damage to equipment resulting in high costs to both you and the company.]

1.7.2.3 Be certain your PPE fits properly, especially in the case of hearing or respiratory protection.

1.7.2.4 Keep personal protective equipment clean and stored in designated container or location when not in use.

1.7.2.5 If you are uncertain as to how to wear or operate the required PPE, ask your Supervisor for assistance immediately.

1.8 **Designated Walkways:**

1.8.1 Designated pedestrian walkways are areas in the plant intended for those on foot.

1.8.1.1 They may lead to specific areas, fire exits or storage zones.

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1.8.2 The intent behind pedestrian walkways is safety, to keep people walking apart from those in forklift trucks and other vehicles and to reduce the incidence and possibility of accidents in the workplace.

1.8.3 **Marking**

1.8.3.1 The pedestrian walkways are well marked by yellow safety paint similar to the color of highway lines, which show up well under all lighting conditions so those using them know to stay inside those lines, and those outside know not to stray over.

1.8.3.2 Lines with black hatch marks designate that forklift operators to move material around and through the building use certain areas.

1.8.4 **Inspection & Training**

1.8.4.1 Pedestrian walkways and surrounding areas will be inspected on a regular basis to ensure that the markings are clear and that there are no obstructions.

1.8.4.2 Staff will be trained during the orientation process in the way to use pedestrian walkways as part of their orientation in the workplace (although it might seem like common sense, reminders can cut down on accidents).

1.9 **Allergen Control:**

1.9.1 Health Canada and the Canadian Food Inspection Agency (CFIA) have jointly identified 10 food products that are primarily responsible for about 90 percent of severe adverse food reactions among the Canadian population.

1.9.1.1 These products are peanuts, tree nuts, wheat, soy, milk, eggs, fish, crustacean and shellfish, sesame seeds, and sulphites.

1.9.2 This policy will ensure at no time is an 'undeclared' allergen allowed into Color Ad facilities exposing employees to potential harm.

1.9.3 Current allergens **banned** even in the lunch room are:

- Peanuts
- Tree Nuts

Related Policy – Doc# F-124

1.9.4 Allergens currently identified as not posing a risk to any employees are:

- Wheat
- Soy

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- Milk
- Eggs
- Any fish, crustacean or shellfish
- Sesame seeds
- Sulphites

1.9.5 Color Ad has, as part of our hiring / orientation process, a declaration of any allergies and their effect on the employee.

1.9.5.1 Any allergens discovered as posing a risk are either banned, or if they cannot be banned, (i.e. in the case of an adhesive used in our manufacturing process); the employee is accommodated whenever possible to ensure there is no danger of contact with said allergen.

1.10 Chemical Control:

1.10.1 This policy will outline the chemical approval, storage and transportation process; and as well will ensure only chemicals from approved suppliers are received at the facility.
[See **Doc# GMP-9** – Supplier Chemicals]

1.10.2 This policy also specifies the procedures for chemical storage, handling and disposal of containers.

1.10.2.1 The intended use of the chemical in the building will be clearly defined by use of color-coded stickers.

1.10.3 Color Ad Packaging only purchases chemicals from approved suppliers.

1.10.3.1 Only specific designated personnel in Purchasing and Quality Assurance departments can order chemicals.

1.10.4 Any new chemical must go through an approval process.

1.10.4.1 Appropriate documentation must be accompanied with each new chemical including Workplace Hazardous Materials Information System (WHMIS), current Material Safety Data Sheet (MSDS) and label information and regulatory approval, if applicable.

1.10.4.2 The new chemical, along with the information listed above is submitted to the Quality Assurance and Health and Safety departments.

1.10.4.3 The information will be reviewed and if the documentation is satisfactory, the chemical will be added to the approved chemical list.

1.10.5 Chemicals are to be received only via the designated Receiving/Shipping personnel.

1.10.5.1 Leaking or damaged containers are to be promptly rejected.

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1.10.5.2 Also see

- Document# OPS-2 – Trailer Inspections
- Document# OPS-4 – Receiving Process &
- Document# FIN-3 – Rejected Raw Materials (if applicable)

1.10.5.3 Chemicals in good condition are transported to designated locations.

1.10.6 Cleaning chemicals are properly stored in the Men's washroom located in the Plant near the VISION Press.

1.10.6.1 Maintenance chemicals are stored in the Maintenance shop.

1.10.6.2 Food grade lubricants are stored separately from Non-food grade lubricants.

1.10.7 Color control identification is to be followed for all chemicals in the building.

1.10.7.1 Upon receipt, designated trained employee will place the label on the chemical without covering name and WHMIS information.

1.10.7.2 The chemical will be identified with a premade color-coded label, available with QA and the Maintenance Manager.

1.10.7.3 The color code scheme is as follows:

Green	Approved for use throughout the production areas and plant. Safe to be used on food contact surfaces.
Yellow	Non- approved controlled chemicals. Only sanitation, maintenance and/or trained employees are allowed to use the chemicals
Red	Restricted chemical for use in Maintenance shop, washrooms and designated areas or surfaces only.

1.10.7.4 All secondary chemical storage containers must be accurately labeled with the content, to prevent misuse.

1.10.8 Disposable empty containers must be rinsed and disposed in the garbage dumpster.

1.10.8.1 Recyclable/re-usable containers must be securely stored, in designated locations until returned to supplier.

1.10.9 Frequency of checking the chemicals will be upon receiving the chemicals in the plant.

1.10.10 Current lists of chemicals used in the Plant are in the MSDS books.

Appendix C

Fire Safety Evacuation Procedure

	<u>STANDARD OPERATING PROCEDURES</u> AND WORK INSTRUCTIONS		Page: 1 of 2
	Document# ERP-26	Published date: Nov 3, 2008	
	Pre-Approval: Health & Safety	Last revision date: Apr 20, 2021	
	Final Approval: COO	Next review date: Apr 20, 2024	
	Department: Health & Safety	Version: 6	
	Subject: Engraving & FG - Fire Safety Evacuation Procedure		

Context and Purpose

Procedures to follow during a fire.

Scope of Work Instructions

This procedure applies to all employees at Engraving & FG Warehouse.

1.0 Instructions

- 1.1 All employees must know
 - 1.1.1 the location of exits closest to their work stations
 - 1.1.2 location of the nearest fire alarm pull station and how to use it
 - 1.1.3 the location of fire extinguishers closest to their work stations
- 1.2 Upon noticing fire, activate the building fire alarm immediately.
 - 1.2.1 The alarm system will
 - 1.2.1.1 Notify the Fire Department for help
 - 1.2.1.2 Ring the fire alarm bells in the building
- 1.3 If the fire is small enough, use a nearby fire extinguisher to control and extinguish the fire.
 - 1.3.1 Do not fight a fire if
 - 1.3.1.1 You don't know what is burning
 - 1.3.1.2 The fire is large and spreading rapidly
 - 1.3.1.3 You don't have the proper equipment
 - 1.3.1.4 The fire might block your means of escape
 - 1.3.1.5 You might inhale toxic smoke
 - 1.3.1.6 You are not confident enough (or unsure of handling the situation)
- 1.4 If the first attempts to put out the fire do not succeed, evacuate the building immediately.
 - 1.4.1 Assist any person in immediate danger of safety, if it can be accomplished without risking yourself.
- 1.5 If possible, doors and windows should be closed if you are the last person to leave the room/area (if you know you are the last person).
- 1.6 Only use stairwells.
 - 1.6.1 **Crawl low under smoke** (heat and smoke rises leaving cleaner air closer to the floor)
 - 1.6.2 Do not run; remain calm.
- 1.7 Upon evacuation all must proceed to the Muster Point near the front entrance.
(See attachment **2.1**)
- 1.8 Do not re-enter the building unless permitted by the Fire Department.
- 1.9 Safety Evacuation Plan:

Appendix D

Safety Data Sheets

Sulfuric Acid 50% (by weight)**SECTION 1. IDENTIFICATION**

Product Identifier	Sulfuric Acid 50% (by weight)
Other Means of Identification	Dihydrogen Sulfate, Hydrogen Sulfate, Battery Acid, Oil of Vitrol
Product Code(s)	SU9080-50
Product Family	Inorganic Acid
Recommended Use	Industrial.
Restrictions on Use	None known.
Supplier Identifier	Alphachem Limited, 2485 Milltower Court, Mississauga, Ontario, L5N 5Z6, (905) 821-2995
Emergency Phone No.	CANUTEC CANADA, 613-996-6666, 24 Hours CHEMTREC, 800-424-9300, 24 Hours
SDS No.	0201

SECTION 2. HAZARD IDENTIFICATION

Classified according to Canada's Hazardous Products Regulations (WHMIS 2015) and the US Hazard Communication Standard (HCS 2012).

Classification

Skin corrosion - Category 1A; Serious eye damage - Category 1

Label Elements

Signal Word:
Danger

Hazard Statement(s):

Causes severe skin burns and eye damage.
Causes serious eye damage.

Precautionary Statement(s):

Do not breathe dust/fume/gas/mist/vapours/spray.

Wash hands thoroughly after handling.

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

Wear protective gloves/protective clothing.

Wear eye protection/face protection.

In case of inadequate ventilation wear respiratory protection (full facepiece NIOSH approved air-purifying respirator with an acid gas cartridge; NIOSH approved air-purifying respirator with an appropriate cartridge).

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

IF ON SKIN: Wash with plenty of water/

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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

Immediately call a POISON CENTRE or doctor.

Other Hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture:

Chemical Name	CAS No.	%	Other Identifiers
Sulfuric acid	7664-93-9	50	Hydrogen Sulfate, Oil of Vitrol
Water	7732-18-5	50	Dihydrogen Oxide

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

Remove source of exposure or move to fresh air. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by Poison Centre or doctor. If the heart has stopped, trained personnel should start cardiopulmonary resuscitation (CPR) or automated external defibrillation (AED).

Skin Contact

Immediately rinse with lukewarm, gently flowing water for 15-20 minutes. Immediately call a Poison Centre or doctor. Specific treatment is required.

Eye Contact

Immediately rinse the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes, while holding the eyelid(s) open.

Ingestion

Rinse mouth with water. Do not induce vomiting. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by the Poison Centre or doctor.

First-aid Comments

Some of the first-aid procedures recommended here require advanced first-aid training. If exposed or concerned, get medical advice or attention.

Most Important Symptoms and Effects, Acute and Delayed

If inhaled and/or swallowed: can cause severe lung injury. May be drawn into the lungs if swallowed or vomited, causing severe lung damage. Death can result. Can harm the nervous system.

Immediate Medical Attention and Special Treatment

Special Instructions

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Not combustible. Use extinguishing agent suitable for surrounding fire. Use water to keep non-leaking, fire-exposed containers cool. Carbon dioxide, dry chemical powder or appropriate foam.

Unsuitable Extinguishing Media

Do not use a solid (straight) water stream as it may scatter and spread fire.

Specific Hazards Arising from the Product

Contact with water causes violent frothing and spattering. Forms corrosive chemicals on contact with water. Review

Product Identifier: Sulfuric Acid 50% (by weight)

Date of Preparation: November 10, 2015

Section 10 (Stability and Reactivity) for additional information.

In a fire, the following hazardous materials may be generated: corrosive sulfur oxides.

Special Protective Equipment and Precautions for Fire-fighters

Evacuate area. Fight fire from a safe distance or a protected location. For a massive fire, immediately evacuate the area and use unmanned hose holder or monitor nozzles.

Fire-fighters should enter area wearing specialized protective equipment. (Bunker Gear will not provide adequate protection.) chemical protective clothing (e.g. chemical splash suit) and positive pressure SCBA may be necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Emergency responders: use the personal protective equipment recommended in Section 8 of this safety data sheet. Evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel.

Environmental Precautions

If the spill is inside a building, prevent product from entering drains, ventilation systems and confined areas. Do not allow into any sewer, on the ground or into any waterway.

Methods and Materials for Containment and Cleaning Up

Stop or reduce leak if safe to do so. Contain and soak up spill with absorbent that does not react with spilled product. Collect using shovel/scoop or approved HEPA vacuum and place in a suitable container for disposal. Place used absorbent into suitable, covered, labelled containers for disposal. Dike and recover contaminated water for appropriate disposal.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Wear personal protective equipment to avoid direct contact with this chemical. Do not get in eyes, on skin or on clothing. Only use where there is adequate ventilation. Keep only in original packaging. Prevent accidental contact with incompatible chemicals.

Conditions for Safe Storage

Store in an area that is: dry, well-ventilated, secure and separate from work areas, separate from incompatible materials (see Section 10: Stability and Reactivity). Store in the original, labelled, shipping container.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Chemical Name	ACGIH TLV®		OSHA PEL		AIHA WEEL	
	TWA	STEL	TWA	Ceiling	8-hr TWA	TWA
Sulfuric acid	0.2 mg/m3 A2		1 mg/m3			
Water	Not established		Not established			

Appropriate Engineering Controls

Use local exhaust ventilation and enclosure, if necessary, to control amount in the air. Provide eyewash and safety shower if contact or splash hazard exists.

Individual Protection Measures

Eye/Face Protection

Wear chemical safety goggles and face shield when contact is possible.

Skin Protection

Wear chemical protective clothing e.g. gloves, aprons, boots.

Suitable materials are: neoprene rubber, butyl rubber, polyvinyl chloride.

Respiratory Protection

Wear a full facepiece NIOSH approved air-purifying respirator with an acid gas cartridge.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Appearance	Colourless liquid.
Odour	Not available
Odour Threshold	> 1 mg/m ³
pH	< 1
Melting Point/Freezing Point	~ 0 °C (melting); ~ 0 °C (freezing)
Initial Boiling Point/Range	Not available
Flash Point	Not applicable
Evaporation Rate	Not available
Flammability (solid, gas)	Will not burn.
Upper/Lower Flammability or Explosive Limit	Not applicable (upper); Not applicable (lower)
Vapour Pressure	Not available
Vapour Density (air = 1)	3.4
Relative Density (water = 1)	1.40
Solubility	Soluble in water; Not available (in other liquids)
Partition Coefficient, n-Octanol/Water (Log Kow)	Not available
Auto-ignition Temperature	Not applicable
Decomposition Temperature	Not available
Viscosity	Not available (kinematic); Not available (dynamic)
Other Information	
Physical State	Liquid

SECTION 10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions of use.

Chemical Stability

Normally stable.

Possibility of Hazardous Reactions

None known.

Conditions to Avoid

Incompatible materials. Open flames, sparks, static discharge, heat and other ignition sources. Water, moisture or humidity.

Incompatible Materials

Acid anhydrides (e.g. acetic anhydride), alcohols (e.g. ethanol), oxidizing agents (e.g. peroxides), ketones (e.g. acetone), strong bases (e.g. sodium hydroxide), metals (e.g. aluminum), inorganic acids (e.g. hydrofluoric acid), aromatic hydrocarbons (e.g. toluene), esters (e.g. amyl acetate), reducing agents (e.g. hydroquinone). Corrosive to: aluminum alloys, stainless steel, carbon steel, cast iron, nickel, nickel alloys (e.g. Monel, Hastelloy), copper, copper alloys (e.g. brass and/or bronze).

Hazardous Decomposition Products

Corrosive sulfur oxides.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

Product Identifier: Sulfuric Acid 50% (by weight)

Date of Preparation: November 10, 2015

Inhalation; skin contact; eye contact; ingestion; skin absorption.

Acute Toxicity

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
Sulfuric acid	255 mg/m3 (rat) (4-hour exposure)	2,140 mg/kg (rat)	Not available
Water	Not available	> 89840 mg/kg (rat)	Not available

Skin Corrosion/Irritation

Animal tests show skin corrosion.

Serious Eye Damage/Irritation

Causes serious eye damage based on skin corrosion information.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

May cause severe nose and throat irritation.

Ingestion

Causes irritation of the mouth, throat and stomach, severe irritation or burns to the mouth, throat and stomach.

Aspiration Hazard

No information was located.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

Causes damage to organs.

Respiratory and/or Skin Sensitization

No information was located.

Carcinogenicity

Chemical Name	IARC	ACGIH®	NTP	OSHA
Sulfuric acid	Group 1	A2	Not Listed	
Water	Not Listed	Not Listed	Not Listed	Not Listed

IARC: Group 1 – Carcinogenic to humans.

ACGIH®: A2 – Suspected human carcinogen.

Reproductive Toxicity

Development of Offspring

No information was located.

Sexual Function and Fertility

No information was located.

Effects on or via Lactation

No information was located.

Germ Cell Mutagenicity

No information was located.

Interactive Effects

No information was located.

SECTION 12. ECOLOGICAL INFORMATION

This section is not required by WHMIS. This section is not required by OSHA HCS 2012.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods

Contact local environmental authorities for approved disposal or recycling methods in your jurisdiction. Bury in a

Product Identifier: Sulfuric Acid 50% (by weight)

Date of Preparation: November 10, 2015

licensed landfill or burn in an approved incinerator according to federal, provincial/state, and local regulations. Store product for disposal as described under Storage in Section 7 of this safety data sheet. Dispose of or recycle empty containers through an approved waste management facility.

SECTION 14. TRANSPORT INFORMATION

Regulation	UN No.	Proper Shipping Name	Transport Hazard Class(es)	Packing Group
Canadian TDG	UN2796	Sulphuric Acid Solution	8	II
US DOT	UN2796	Sulphuric Acid Solution	8	II

Environmental Hazards Not applicable

Special Precautions Not applicable

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

Canada

Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)

Listed on the DSL.

USA

Toxic Substances Control Act (TSCA) Section 8(b)

All ingredients are listed on the TSCA Inventory.

SECTION 16. OTHER INFORMATION

SDS Prepared By Alphachem Limited

Phone No. (905)-821-2995

Date of Preparation November 10, 2015

Date of Last Revision January 23, 2017

References CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS).

Disclaimer This document is offered only as a guide in the safe handling of the above product, and has been prepared from the best information currently available. It is not intended to be all-inclusive and the conditions of use may involve other additional considerations. Since Alphachem Limited cannot anticipate or control the conditions under which the product may be used, it will not be liable for any claims, damages or losses which may result from the use or reliance on any information herein.

Product Identifier: Sulfuric Acid 50% (by weight)

Date of Preparation: November 10, 2015

WWT

MATERIAL SAFETY DATA SHEET

CAUSTIC SODA, LIQUID, 10 - 50 % (8589, 9028, 9101)

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Brenntag Canada Inc.
43 Julland Rd.
Toronto, ON
M8Z 2G6
(416) 259-8231

WHMIS#: 00060114
Index: GCD1716/10A
Effective Date: 2010 January 04
Date of Revision: 2010 January 04

Website: <http://www.brenntag.ca>

EMERGENCY TELEPHONE NUMBERS (FOR EMERGENCIES INVOLVING CHEMICAL SPILLS OR RELEASE)

Toronto, ON (416) 226-6117
Edmonton, AB (780) 424-1754

Montreal, QC (514) 861-1211
Calgary, AB (403) 263-8660

Winnipeg, MB (204) 943-8827
Vancouver, BC (604) 685-5036

PRODUCT IDENTIFICATION

Product Name: Caustic Soda, Liquid, 10 - 50 % (8589, 9028, 9101).
Chemical Name: Sodium Hydroxide.
Synonyms: Lye; Soda Lye; Caustic Soda 3 %, 6 %, 6.6 %, 10 %, 12 %, 15 %, 16 %, 16.6 %, 18 %, 20 %, 21 %, 25 %, 30 %, 31 %, 33 %, 34.67 % 40 %, 50 %. Grade(s): Caustic Soda 50 % Diaphragm; Caustic Soda 50 % Membrane; Caustic Soda Rayon.
Chemical Family: Hydroxide. Sodium salts.
Molecular Formula: NaOH.
Product Use: Cleaner. Metal treatment. Water treatment. pH control of water. Neutralizing agent in the petroleum industry. Laboratory reagent. Pulp and paper industry. Chemical intermediate.

WHMIS Classification / Symbol:

E: Corrosive



READ THE ENTIRE MSDS FOR THE COMPLETE HAZARD EVALUATION OF THIS PRODUCT.

2. COMPOSITION, INFORMATION ON INGREDIENTS (Not Intended As Specifications)

Ingredient	CAS#	ACGIH TLV	% Concentration
Sodium Hydroxide	1310-73-2	—	10 - 50
Sodium Chloride	7647-14-5	---	0 - 2

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Corrosive/Harmful if inhaled, absorbed through skin, or swallowed. Causes severe skin and eye burns. Prolonged or repeated exposure may cause discoloration and erosion of teeth. Vapours are extremely irritating to eyes and respiratory tract. See "Other Health Effects" Section. This product is often transported and handled hot. Contact with heated material may cause thermal burns. Can decompose at high temperatures forming toxic gases. Contents may develop pressure on prolonged exposure to heat.

POTENTIAL HEALTH EFFECTS

Inhalation:	Corrosive Product may cause severe irritation of the nose, throat and respiratory tract. Repeated and/or prolonged exposures may cause productive cough, running nose, bronchopneumonia, pulmonary oedema (fluid build-up in lungs), and reduction of pulmonary function. Toxic effects may be delayed. Airborne concentration of dust, mist or spray may cause damage to the lung tissue which could produce chemical pneumonia. Can cause injury to entire respiratory tract. See "Other Health Effects" Section.
Skin Contact:	Corrosive Burns (chemical) can occur if not promptly removed. Concentrated solutions may cause pain and deep and severe burns to the skin. Prolonged and repeated exposure to dilute solutions often causes irritation, redness, pain and drying and cracking of the skin. Prolonged and repeated contact may lead to dermatitis.
Skin Absorption:	Corrosive Skin absorption is a secondary concern to the continual destruction of tissue while the product is in contact with the skin. Burns (chemical) can occur if not promptly removed.
Eye Contact:	Extremely corrosive! This product causes corneal scarring and clouding. Glaucoma, cataracts and permanent blindness may occur. Prolonged and repeated exposure may cause visual disturbances.
Ingestion:	Corrosive This product causes severe burning and pain in the mouth, throat and abdomen. Vomiting, diarrhea and perforation of the esophagus and stomach lining may occur.
Other Health Effects:	Corrosive effects on the skin and eyes may be delayed, and damage may occur without the sensation or onset of pain. Strict adherence to first aid measures following any exposure is essential. May cause chemical pneumonitis bluish lips and skin pulmonary oedema. Pulmonary oedema is the build-up of fluid in the lungs that might be fatal. Symptoms of pulmonary oedema, such as shortness of breath, may not appear until several hours after exposure and are aggravated by physical exertion. (4) Corrosive to all body tissues with which it comes in contact. The effect of local dermal exposure may consist of multiple areas of superficial destruction of the skin or of primary irritant dermatitis. Similarly, inhalation of dust, spray or mist may result in varying degrees of irritation or damage to the respiratory tract tissues and an increased susceptibility to respiratory illness. These effects occur only when the TLV is exceeded. (3) Regardless of concentrations, the severity of damage and extent of its irreversibility increases with length of contact time. Prolonged contact with even dilute Sodium Hydroxide solution can cause a high degree of tissue destruction. The latent period, following skin contact during which no sensation of irritation occurs, varies from several hours for 0.4-4% solution to 3 minutes with 25-50% solution. (3)

4. FIRST AID MEASURES

FIRST AID PROCEDURES

Inhalation:	Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing AND no pulse. Oxygen administration may be beneficial in this situation but should only be administered by personnel trained in its use. Obtain medical attention IMMEDIATELY.
Skin Contact:	Prompt removal of the material from the skin is essential for all concentrations, whether as a solid, or a concentrated or dilute solution. (3) Prompt removal of the material from the skin is essential. Remove all contaminated clothing and immediately wash the exposed areas with copious amounts of soap and water for a minimum of 30 minutes or up to 60 minutes for critical body areas. Immerse the exposed part immediately in ice water to relieve pain and to prevent swelling and blistering. Place cold packs, ice or wet cloths on the burned area if immersion is not possible. Cover the exposed part with a clean, preferably sterile, lint-free dressing. Obtain medical attention IMMEDIATELY and monitor breathing and treat for shock for severe exposure.
Eye Contact:	Immediately flush eyes with running water for a minimum of 30 minutes, preferably up to 60 minutes. Hold eyelids open during flushing. If irritation persists, repeat flushing. Do not transport victim until the recommended flushing period is completed unless flushing can be continued during transport.
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 1/2 to 1 glass of water to dilute material. DO NOT induce vomiting. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. Obtain medical attention IMMEDIATELY. 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.

Note to Physicians:

Due to the severely irritating or corrosive nature of the material, swallowing may lead to ulceration and inflammation of the upper alimentary tract with hemorrhage and fluid loss. Also, perforation of the esophagus or stomach may occur, leading to mediastinitis or peritonitis and the resultant complications.
(3)

Mucosal injury following ingestion of this corrosive material may contraindicate the induction of vomiting in the treatment of possible intoxication. Similarly, if gastric lavage is performed, intubation should be done with great care. If oral burns are present or a corrosive ingestion is suspected by the patient's history, perform esophagoscopy as soon as possible. Scope should not be passed beyond the first burn because of the risk of perforation.

This product contains materials that may cause severe pneumonitis if aspirated. If ingestion has occurred less than 2 hours earlier, carry out careful gastric lavage; use endotracheal cuff if available, to prevent aspiration. Observe patient for respiratory difficulty from aspiration pneumonitis. Give artificial resuscitation and appropriate chemotherapy if respiration is depressed.

Medical conditions that may be aggravated by exposure to this product include diseases of the skin, eyes or respiratory tract.

5. FIRE-FIGHTING MEASURES

<i>Flashpoint (°C)</i>	<i>Autoignition Temperature (°C)</i>	<i>Flammability Limits in Air (%):</i>	
		<i>LEL</i>	<i>UEL</i>
Non-combustible (does not burn).	Not applicable.	Not applicable.	Not applicable.
Flammability Class (WHMIS):	Not regulated.		
Hazardous Combustion Products:	Thermal decomposition products are toxic and may include oxides of sodium.		
Unusual Fire or Explosion Hazards:	Not normally a fire hazard. Water content of product prevents ignition. Reacts with most metals to produce hydrogen gas which could make an explosive mixture with air. Closed containers exposed to heat may burst. Spilled material may cause floors and contact surfaces to become slippery.		
Sensitivity to Mechanical Impact:	Not expected to be sensitive to mechanical impact.		
Rate of Burning:	Not available.		
Explosive Power:	Not available.		
Sensitivity to Static Discharge:	Not expected to be sensitive to static discharge.		
EXTINGUISHING MEDIA			
Fire Extinguishing Media:	Use media appropriate for surrounding fire and/or materials.		
FIRE FIGHTING INSTRUCTIONS			
Instructions to the Fire Fighters:	Isolate materials that are not involved in the fire and protect personnel. Remove containers from fire zone whenever possible.		
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. See section 8.		

6. ACCIDENTAL RELEASE MEASURES

Information in this section is for responding to spills, leaks or releases in order to prevent or minimize the adverse effects on persons, property and the environment. There may be specific reporting requirements associated with spills, leaks or releases, which change from region to region.

Containment and Clean-Up Procedures:

See Section 13, "Deactivating Chemicals". In all cases of leak or spill contact vendor at Emergency Number shown on the front page of this MSDS. Collect product for recovery or disposal. For release to land, or storm water runoff, contain discharge by constructing dykes or applying inert absorbent; for release to water, utilize damming and/or water diversion to minimize the spread of contamination. Ventilate enclosed spaces. Notify applicable government authority if release is reportable or could adversely affect the environment. Spilled material may cause floors and contact surfaces to become slippery. Wear respirator, protective clothing and gloves. A chemical splash suit should be used when necessary to prevent skin contact with highly corrosive liquids. Replace damaged containers immediately to avoid loss of material and contamination of surrounding atmosphere.

7. HANDLING AND STORAGE

HANDLING

Handling Practices:

Use normal "good" industrial hygiene and housekeeping practices. Containers 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. A chemical splash suit should be used when necessary to prevent skin contact with highly corrosive liquids. When diluting, add this material/product to water in small amounts to avoid spattering. Never add water to this material/product. The water should be lukewarm. Never start with hot or cold water.

Add small quantities of this material slowly to large quantities of water, stirring constantly all the while. Constant stirring is necessary to avoid concentration of the product at the bottom of the mix vessel. Such concentration of the product may result in a violent exotherm with boiling of the liquid resulting in splashing, spattering or a violent eruption of a highly corrosive solution if the addition is too rapid or without sufficient stirring. Clean all containers of residues before adding the product. This will avoid potential violent reaction with unknown residues. (3)

Ventilation Requirements:

See Section 8, "Engineering Controls".

Other Precautions:

Use only with adequate ventilation and avoid breathing aerosols (vapours or mists). Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling. Wash contaminated clothing thoroughly before re-use.

STORAGE

Storage Temperature (°C):

See below.

Ventilation Requirements:

Ventilation should be corrosion proof.

Storage Requirements:

Hazardous carbon monoxide can form upon contact with food and beverage 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.

Corrosive mist is most likely to be generated at the vents of process or storage tanks, especially during filling operations. The use of compressed air to force corrosive materials from delivery trucks is of special concern. Scrubbing the exhaust of these vents is highly recommended. Jurisdictional regulations should be consulted to determine required practices. Protect from direct sunlight. Protect against physical damage.

Special Materials to be Used for Packaging or Containers:

Reacts with most metals to produce hydrogen gas which could make an explosive mixture with air. Equipment for storage, handling or transportation should NOT be made of: aluminum, copper, zinc, tin, lead, bronze, brass, Chromium and Magnesium. Attacks some types of rubber, plastics and coatings. Confirm suitability of any material before using.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Recommendations listed in this section indicate the type of equipment, which will provide protection against overexposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

ENGINEERING CONTROLS

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.

For personnel entry into confined spaces (i.e. bulk storage tanks) a proper procedure must be followed. It must include consideration of, among other things, ventilation, testing of tank atmosphere, provision and maintenance of SCBA, and emergency rescue. Use the "buddy" system. The second person should be in view and trained and equipped to execute a rescue. (4)

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Eye Protection:

Safety glasses with side shields are recommended to prevent eye contact. Use full face-shield and chemical safety goggles when there is potential for contact. Contact lenses should not be worn when working with this material.

Skin Protection:	Gloves and protective clothing made from butyl rubber, neoprene, natural rubber, nitrile rubber or PVC should be impervious under conditions of use. Discard contaminated gloves. Prior to use, user should confirm impermeability.
	Do not use gloves or protective clothing made from polyvinyl alcohol (PVA). Exposed skin areas should be protected as appropriate whenever the potential for skin contact exists (consider long sleeves, gloves, aprons, etc.).
Respiratory Protection:	No specific guidelines available. A NIOSH/MSHA-approved full facepiece air-purifying respirator equipped with dust, mist, fume cartridges for concentrations up to 10 mg/m ³ . An air-supplied respirator if concentrations are higher or unknown.
	Immediately Dangerous to Life and Health (IDLH) value: 10 mg/m ³ . The purpose of establishing an IDLH value is to ensure that the worker can escape from a given contaminated environment in the event of failure of the most protective respiratory equipment. In the event of failure of respiratory protective equipment, every effort should be made to exit immediately. (4)
Other Personal Protective Equipment:	Wear an impermeable apron and boots. A chemical splash suit should be used when necessary to prevent skin contact with highly corrosive liquids. Locate safety shower and eyewash station close to chemical handling area. Take all precautions to avoid personal contact.

EXPOSURE GUIDELINES

SUBSTANCE	ACGIH TLV (STEL)	OSHA PEL (TWA)	OSHA PEL (STEL)	NIOSH REL (TWA)	NIOSH REL (STEL)
Sodium Hydroxide	2 mg/m ³ (Ceiling)	2 mg/m ³	---	---	2 mg/m ³ (Ceiling)

9. PHYSICAL AND CHEMICAL PROPERTIES (Not intended as Specifications)

Physical State:	Liquid.
Appearance:	Clear, colourless liquid.
Odour:	Odourless
Odour Threshold (ppm):	Not available.
Boiling Range (°C):	140 - 144 (50 %). (3)
Melting/Freezing Point (°C):	5 - 12 (50 %). (3)
Vapour Pressure (mm Hg at 20° C):	1.5 (50 %). (3)
Vapour Density (Air = 1.0):	Not available.
Relative Density (g/cc):	1.11 (10 %); 1.22 (20 %); 1.33 (30 %); 1.43 (40 %); 1.53 (50 %). (3)
Bulk Density:	1 110 - 1 530 kg/m ³ .
Viscosity:	78.3 cp (50 %)
Evaporation Rate (Butyl Acetate = 1.0):	Not available.
Solubility:	Soluble in water.
% Volatile by Volume:	50 - 90. (3)
pH:	14.0 (5 % solution). (3)
Coefficient of Water/Oil Distribution:	Not available.
Volatile Organic Compounds (VOC):	0.
Flashpoint (°C):	Non-combustible (does not burn).

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY

Under Normal Conditions:	Stable.
Under Fire Conditions:	Not normally a fire hazard. Water content of product prevents ignition.
Hazardous Polymerization:	Will not occur.
Conditions to Avoid:	High temperatures, sparks, open flames and all other sources of ignition. Avoid moisture contamination. Avoid direct contact of this product with water as this can cause a violent exothermic reaction. Keep tightly closed to protect quality.

Materials to Avoid:	Strong oxidizing and reducing agents. Halogenated compounds. Trichloroethylene. Nitromethane. Violently reactive with: aldehydes, organic materials and Acids. Organic materials. Combustibles. Organic Halides Strong bases. May react with organohalogen compounds to form spontaneously combustible compounds. May react explosively with nitro- and chloro-organic compounds, glycols and organic peroxides. Violently polymerizes acetaldehyde, acrolein, and acrylonitrile.
Decomposition or Combustion Products:	Reacts with most metals to produce hydrogen gas which could make an explosive mixture with air. Solutions are slightly corrosive to metals. Aluminum and its alloys. Zinc and its alloys. Copper and its alloys. Tin. Galvanized Materials. Bronze. Brass. Lead. Chromium. Magnesium. Alkali metals. Attacks some types of rubber, plastics and coatings. Potentially deadly carbon monoxide gas can form in enclosed areas or enclosed tanks when alkaline products contact food or beverage products that contain sugars. (3)
	Thermal decomposition products are toxic and may include oxides of sodium.

11. TOXICOLOGICAL INFORMATION

TOXICOLOGICAL DATA:

SUBSTANCE	LD50 (Oral, Rat)	LD50 (Dermal, Rabbit)	LC50 (Inhalation, Rat, 4h)
Sodium Hydroxide	---	1 350 mg/kg (3)	---
Carcinogenicity Data:	The Ingredient(s) of this product is (are) not classed as carcinogenic by ACGIH, IARC, OSHA or NTP. See "Other Studies Relevant to Material".		
Reproductive Data:	No adverse reproductive effects are anticipated.		
Mutagenicity Data:	No adverse mutagenic effects are anticipated.		
Teratogenicity Data:	No adverse teratogenic effects are anticipated.		
Respiratory / Skin Sensitization Data:	None known.		
Synergistic Materials:	None known.		
Other Studies Relevant to Material:	Many publications in the scientific literature confirm the severely irritating properties of acute and short-term exposure to Sodium Hydroxide in humans and animals and discuss toxic effects (such as death, eye damage or changes in lung morphology), which are probably related to the corrosive properties of this compound. (3) Inhalation of unmeasured concentrations 30 minutes per day for 2.5 months resulted in lung damage in rats. A rodent drinking water study at 1% (duration unknown) was reported to result in "nervous symptoms" and growth retardation. Growth was unaffected in this same study at 0.5%, but no conceptions occurred. (3) No tumors were seen in any longer term animal studies. Sodium Hydroxide produced no genetic changes in standard tests using bacterial cells. No significant increases in mortality in relation to duration or intensity of exposures were reported in an epidemiologic study of a small group of workers exposed to caustic dusts for 30 years or more. (3) Massive ingestion of Sodium Hydroxide has been implicated as causing esophageal cancer. Squamous cells carcinomas of the esophagus occurred approximately 12-42 years later in individuals who survived accidental childhood ingestion and are likely due to the tissue destruction and possible scarring of the esophagus rather than a direct effect of Sodium Hydroxide. (3)		

12. ECOLOGICAL INFORMATION

Ecotoxicity:	Toxicity is primarily associated with pH. This product is toxic to Aquatic Life.
	Sodium Hydroxide: LC50 (24-hr) = 25 ppm (Brook trout). (3) LC50 (48-hr) = 33 - 100 ppm (Shrimp). (3) LC50 (48-hr) = 220 - 1000 ppm (Cockle). (3)

Environmental Fate: This material is not expected to bioaccumulate. (3) Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.

Sodium Hydroxide has no biological oxygen demand. (3) There is limited information available on the environmental fate and effects of Sodium Hydroxide. Laboratory toxicity data indicate that Sodium Hydroxide is moderately toxic to aquatic and terrestrial organisms. The primary mode of action is due to the corrosive nature of this chemical and its tendency to increase pH in poorly buffered environments. Aquatic organisms become increasingly stressed as pH exceeds 9, with many aquatic species being intolerant of pH levels in excess of 10. Increased pH due to the introduction of Sodium Hydroxide into aquatic environments may lead to the precipitation of essential micronutrients. Exposed terrestrial species would be subject to skin irritation and burns due to the corrosive nature of this material. Due caution should be exercised to prevent the accidental release of this material to aquatic or terrestrial environments. (3)

13. DISPOSAL CONSIDERATIONS

Deactivating Chemicals: Neutralize carefully with weak acid to a pH of 6 to 9. Neutralization is expected to be exothermic. Effervescence may result. Add a liberal covering of sodium bicarbonate. Confirm pH using pH paper.

Waste Disposal Methods: This information applies to the material as manufactured. Reevaluation of the product may be required by the user at the time of disposal since the product uses, transformations, mixtures and processes may influence waste classification. 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.

Safe Handling of Residues: See "Waste Disposal Methods".

Disposal of Packaging: Empty containers retain product residue and can be dangerous. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. Treat package in the same manner as the product.

14. TRANSPORTATION INFORMATION

CANADIAN TDG ACT SHIPPING DESCRIPTION:

SODIUM HYDROXIDE SOLUTION, Class 8, UN1824, PG II.

Label(s): Corrosives. Placard: Corrosives.

ERAP Index: -----, Exemptions: None known.

US DOT CLASSIFICATION (49CFR 172.101, 172.102):

SODIUM HYDROXIDE SOLUTION, Class 8, UN1824, PG II.

Label(s): Corrosive. Placard: Corrosive.

CERCLA-RQ: 1 000 lb / 454 kg. Exemptions: None known.

15. REGULATORY INFORMATION

CANADA

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

CEPA - NPRI: Not Included.

Controlled Products Regulations Classification (WHMIS):

E: Corrosive

USA

Environmental Protection Act: All constituents of this product are included on the TSCA Inventory.

OSHA HCS (29CFR 1910.1200): Corrosive.

NFPA: 3 Health, 0 Fire, 1 Reactivity (3)

HMIS: 3 Health, 0 Fire, 1 Reactivity (3)

INTERNATIONAL

Sodium Hydroxide is found on the following inventories: EINECS (European Inventory of Existing Commercial Chemical Substances),

Australia (ACQIN), Japan (MITI) and Korea (ECL).

16. OTHER INFORMATION

REFERENCES

1. RTECS-Registry of Toxic Effects of Chemical Substances, Canadian Centre for Occupational Health and Safety RTECS database.
2. Clayton, G.D. and Clayton, F.E., Eds., Patty's Industrial Hygiene and Toxicology, 3rd ed., Vol. IIA,B,C, John Wiley and Sons, New York, 1981.
3. Supplier's Material Safety Data Sheet(s).
4. CHEMINFO, through "CCINFODisc", Canadian Centre for Occupational Health and Safety, Hamilton, Ontario, Canada.
5. Guide to Occupational Exposure Values, 2008, American Conference of Governmental Industrial Hygienists, Cincinnati, 2008.
6. Regulatory Affairs Group, Brenntag Canada Inc.
7. The British Columbia Drug and Poison Information Centre, Poison Management Manual, Canadian Pharmaceutical Association, Ottawa, 1981.

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Brenntag Canada Inc. will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This Material Safety Data Sheet is valid for three years.

To obtain revised copies of this or other Material Safety Data Sheets, contact your nearest Brenntag Canada Regional office.

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Phone: (604) 513-9009 Facsimile: (604) 513-9010

Alberta: 6628 - 45th Street, Leduc, AB, T9E 7C9
Phone: (780) 986-4544 Facsimile: (780) 986-1070

Manitoba: 681 Plinquet Street, Winnipeg, MB, R2J 2X2
Phone: (204) 233-3416 Facsimile: (204) 233-7005

Ontario: 43 Julland Road, Toronto, ON, M8Z 2G6
Phone: (416) 259-8231 Facsimile: (416) 259-5333

Quebec: 2900 Jean Baptiste Des., Lachine, PQ, H8T 1C8
Phone: (514) 636-9230 Facsimile: (514) 636-0877

Atlantic: A-105 Akerley Boulevard, Dartmouth, NS, B3B 1R7
Phone: (902) 468-9690 Facsimile: (902) 468-3085

Prepared By: Regulatory Affairs Group, Brenntag Canada Inc., (416) 259-8231.

**Precautionary statements**

P264	Wash hands thoroughly after handling.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P362 + P364	Take off contaminated clothing and wash before reuse.
P301 + P312	IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell.
P339	Rinse mouth.
P303 + P352	IF ON SKIN: Rinse skin with plenty of water.
P304+P340+P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or Doctor/Physician.
P332 + P313	If skin irritation occurs, get medical advice/attention.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists, get medical advice/attention
P403+P235	Store in well ventilated place. Keep cool.

Potential Health Effects**Inhalation**

May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Skin

May be harmful if absorbed through skin. Causes skin irritation.

Eyes

Causes eye burns. Causes severe eye burns.

Ingestion

May be harmful if swallowed.

Section 3: Composition/information on ingredients

Synonyms: Mixture

Chemical characterization:

Name	CAS-No.	EC-No.	Index-No.	Concentration
Ferrous Sulphate, heptahydrate	7720-78-7			18 - 22% BV
Sulphuric Acid	7664-93-9			0.25% BV

Section 4: First aid measures**Description of first aid measures:**

Request medical assistance immediately, showing the SDS of this product.

Inhalation:

Seek immediate medical attention. DO NOT DELAY. Remove victim to rest in a well ventilated area or fresh air. In case of irregular breathing or respiratory arrest provide artificial respiration. Consult a Physician.

Skin contact:

Seek medical attention. DO NOT DELAY. Remove contaminated clothing and shoes. Immediately wash all exposed skin area with plenty of soap and water for at least 15 minutes.

Eye contact:

Flush eyes with water immediately for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

Ingestion:

DO NOT induce vomiting. Rinse mouth with water. Never give anything by mouth to an unconscious person. Consult a physician. Seek medical attention.



MAR-Tech

Waste Water

MAR FE 200

Safety Data Sheet

Issued Date: January 2021

Section 1: Identification of the substance/mixture and of the company/undertaking

PRODUCT IDENTIFIER: MAR FE 200

Application of the substance / mixture: Metal finishing

Manufacturer / Supplier: MAR-Tech Holdings Inc.
7 Commerce Court
Stoney Creek, Ontario
L8E 4G3
Telephone 1.905.643.1700
Fax 1.905.643.1707

CHEMICAL EMERGENCY NUMBER Canutec (24 Hour) 613-996-6666

Section 2: Hazards Identification

Emergency Overview

WHMIS Classification

E Corrosive Material

Corrosive to metals
Corrosive to skin
Corrosive

GHS Classification

Serious eye damage/eye irritation (Category 1)
Corrosive to metals (Category 1)
Skin corrosive/irritation (Category 1A)
Acute aquatic toxicity (Category 3)

GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statements

H290 May be corrosive to metals.
H302 Harmful if swallowed.
H315 Causes skin irritation
H319 Causes serious eye irritation.

**Conditions for safe storage, including incompatibilities**

Store container tightly closed in a dry well-ventilated place. Keep containers upright to prevent leakage.

Information about storage in one common storage facility: Not required.

Further information about storage conditions: Keep receptacle tightly sealed.

Specific end use(s): No further relevant information available.

Section 8: Exposure controls / personal protection**Control parameters****Ingredients with limit values that require monitoring in the workplace:****Sulphuric Acid**

	<u>Components</u>	<u>Classification</u>	<u>Concentration</u>
CAS-No.	7664-93-9	Met. Corr. 1; Skin Corr. 1A;	<=0.25%
EC-No.		H290, H302 H390	
Index-No.			
Registration number			

Components	CAS-No.	Value	Control parameters	Basis
Sulphuric Acid	7664-93-9	C	0.2 mg/m ³	Canada, British Columbia OEL
		CEV	0.2 mg/m ³	Canada, Ontario OELs
		(c)	0.2 mg/m ³	Canada, Alberta, Occupational Health and Safety Code (table 2: OEL)
		C	0.2 mg/m ³	USA, ACGIH Threshold Limit Values (TLV)

Exposure controls**Engineering measures:**

Mechanical exhaust required.

Ensure adequate ventilation, especially in confined areas.

Ensure eyewash stations and safety showers are close to workstations.

Personal protective equipment**Eye Protection**

Tightly sealed safety goggles / glasses. Face shield.

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (USA) or EN 166 (EU).



Section 5: Firefighting measures

General information:

As in any fire, wear a self-containing breathing apparatus in pressure-demand, MSHA/NIOSH (approved equivalent), and full protective gear.

Conditions of flammability

Not flammable or combustible.

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire fighters

Firefighters should wear self-contained breathing apparatus and full fire-fighting turnout gear. Do not enter fire area without proper protective equipment, including respiratory protection. Exercise caution when fighting any chemical fire. Do not inhale in case of fire or combustion.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions – Sulphur oxides.

Explosion data – sensitivity to mechanical impact

No data available

Explosion data – sensitivity to static discharge

No data available

Section 6: Accidental release measures

General Information:

Use proper protective equipment as indicated in Section 8.

Personal precautions, protective equipment and emergency procedures

For emergency responders: avoid contact with skin, eyes and clothing. Use respiratory device against the effects of fumes. Avoid breathing dust, mist and vapours. Wear protective equipment.

For non-emergency personnel: Avoid Inhalation and substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures.

Environmental precautions

Do not allow to enter sewers / surface or ground water.

Methods and material for containment and cleaning up

Cover drains. Contain spillage, and then collect and place in suitable container for disposal. Keep container closed. Dispose contaminated material as waste according to Section 13.

Reference to other sections

See Section 7 for information on handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

Section 7: Handling and storage

Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of aerosols. Do not ingest. Avoid inhalation of chemical. Empty containers may contain hazardous product residues. Keep containers closed when not in use. Protect against damage.

Open and handle receptacle with care.



Lower explosion limit:	Not applicable
Upper explosion limit:	Not applicable
Vapour pressure:	Not applicable
Relative density:	1.12 – 1.22
Bulk density:	Not applicable
Solubility:	Not applicable
Auto ignition:	Not available
Viscosity, dynamic:	Not applicable
Kinematic:	Not applicable
Oxidizing properties:	Not applicable

Section 10: Stability and reactivity

Chemical stability Stable under standard ambient conditions.

Possibility of hazardous reactions

No data available.

Conditions to avoid Excessive heat

Incompatible materials Carbon steel, Brasses, Aluminum and nylon

Hazardous decomposition products Hazardous decomposition products formed under fire condition such as Oxides and sulphur

Section 11: Toxicological information

Information on toxicological effects

Acute toxicity

LD50: Oral 2140 mg/kg Rat

LD50: Dermal No data available.

LC50: Inhalation 510 mg/m³ Rat

LC50: Intraperitoneal No data available.

Skin corrosion / irritation

Rabbit Causes burns. 5 mg in 30 seconds

Eye damage / irritation

Rabbit. Corrosive. 24 hrs.

Sensitization

May cause skin reaction

Mutagenic effects

Mutagenic Cytogenetic analysis. Ovary (Somatic cell) 4 mmol/L

Reproductive effects

No data available.

Developmental effects

No information available

Teratogenicity

No data available.

Target organs

No data available.

Aspiration hazard

No data available

Potential Health Effects

Inhalation

May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Skin

May be harmful if absorbed through skin. Causes skin irritation.

Eyes

Causes eye burns. Causes severe eye burns.

Ingestion

May be harmful if swallowed.

Signs and Symptoms of Exposure

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

**Hand protection**

Protective gloves.

The selected protective gloves have to satisfy the specifications of EU Directive 89/689/EEC or appropriate government standards.

Gloves must be inspected before prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Skin protection

Complete suit protecting against chemicals. Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection

In case of brief exposure or low pollution use respiratory filter device.

In case of intensive or longer exposure use self-contained respiratory protective device.

Where risk assessment shows air-purifying respirators are appropriate, use full-face respirator with multi-purpose combination (US) or type ABEK (EN14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

General protective and hygienic measures

Avoid contact with skin, eyes and clothing.

Keep away from foods and beverages

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work

Store protective clothing separately

Handle in accordance with good industrial hygiene and safety practice

Section 9: Physical and chemical properties**Information on basic physical and chemical properties**

Form:	Liquid
Colour:	Green to blue
Odour:	Acidic odor
Odour threshold:	Not determined
pH:	>2 (Acid)
Melting point:	Not applicable
Boiling point:	>105 °C
Flash point:	Not applicable
Evaporation rate:	No information available
Flammability (solid, gas):	Product is not flammable
Ignition temperature:	Not determined
Self-igniting:	Not determined



Section 16: Other information

List of relevant R phrases, hazard statements, safety phrases and/or precautionary statements.

THIS INFORMATION IS BASED ON OUR PRESENT KNOWLEDGE. HOWEVER, THIS SHALL NOT CONSTITUTE A GUARANTEE FOR ANY SPECIFIC PRODUCT FEATURES AND SHALL NOT ESTABLISH A LEGALLY VALID CONTRACTUAL RELATIONSHIP.

Sources:

- DIR. 67/548/EC, in the latest valid version
- Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006, REACH
- Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008, CLP, in the latest valid version.
- Globally Harmonized System, GHS

**Section 12: Ecological information**

Toxicity No information available

Persistence and degradability: No information available

Bioaccumulative potential: No information available

Mobility in soil: No information available

Results of PBT and vPvB assessment: No information available

Other adverse effects: Harmful to aquatic life.

Section 13: Disposal considerations**Product**

Must not be disposed together with household garbage
Do not allow product to reach sewage system
Observe all regional and local environmental regulations.

Contaminated packaging:

The containers and packing materials contaminated with dangerous substances or preparations, have the same treatment as the products.

Recommendation:

Disposal must be made according to official regulations.
Packaging is to be disposed of in the same manner as the product.

Section 14: Transportation information**DOT (US)**

UN number: 3264 Class: 8 Packing group: III
Proper shipping name: Corrosive liquid, acidic, inorganic, n.o.s. (contains ferrous Sulphate)

IMDG

UN number: 3264 Class: 8 Packing group: III
Proper shipping name: Corrosive liquid, acidic, inorganic, n.o.s. (contains ferrous Sulphate)

IATA

UN number: 3264 Class: 8 Packing group: III
Proper shipping name: Corrosive liquid, acidic, inorganic, n.o.s. (contains ferrous Sulphate)

Section 15: Regulatory information**WHMIS Classification**

E Corrosive Corrosive to metals.
Corrosive to skin.
Corrosive

**Signal word** Danger**Hazard- determining components of labeling:**
chromium (VI) trioxide**Hazard statements**

H301+H311 Toxic if swallowed or contact with skin.
H314 Causes severe skin burns and eye damage.
H317 May cause allergic skin reaction.
H330 Fatal if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H340 May cause genetic defects.
H350 May cause cancer.
H361 Suspected of damaging fertility or unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

P220 Keep / Store away from combustible materials.
P260 Do not breathe fume/ gas/ vapour/ mist/ spray.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284 Wear respiratory protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician.
P312 Call a POISON CENTER or doctor/physician if you feel unwell.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P501 Dispose contents/container to hazardous or special waste collection point in accordance with local/ regional/ national/ international regulation.

HMIS Classification

Health Hazard: 4
Chronic Health Hazard: *
Flammability: 0
Physical Hazard: 2

Potential Health Effects

Inhalation Toxic if inhaled. Material is destructive to the tissue of the mucous membranes and upper respiratory tract.
Skin Toxic if absorbed through skin. Causes skin burns.
Eyes Causes eye burns.
Ingestion Toxic if swallowed

Section 3: Composition/information on ingredients

Synonyms: Liquid Chromic Acid
Chemical characterization: Mixtures

Hazardous ingredients

Name	CAS-No.	EC-No.	Index-No.	Concentration
Chromium Trioxide	1333-82-0	215-607-8	024-001-00-0	30 – 40%



Safety Data Sheet

Issued Date: January 2015

Section 1: Identification of the substance/mixture and of the company/undertaking

PRODUCT IDENTIFIER: MAR Chrome Pro Elite RL

Chemical Family: Metal Oxide (oxidizing agent)
DSL: CEPA DSL: Chromic Acid
Application of the substance / mixture: Metal finishing

Manufacturer / Supplier: MAR-Tech Holdings Inc.
7 Commerce Court
Stoney Creek, Ontario
L8E 4G3
Telephone 1.905.643.1700
Fax 1.905.643.1707

CHEMICAL EMERGENCY NUMBER Canutec (24 Hour) 613-996-6666

Section 2: Hazards Identification

Emergency Overview

WHMIS Classification

D1B	TOXIC Material causing immediate and serious toxic effects	Toxic by ingestion
D2A	VERY TOXIC Material causing other toxic effects	Toxic by skin absorption
E	Corrosive liquid	Corrosive

GHS Classification

Acute toxicity, Oral (Category 1)
Acute toxicity, Inhalation (Category 3)
Acute toxicity, Dermal (Category 3)
Skin corrosion (Category 1A)
Serious eye damage (Category 1)
Respiratory sensitization (Category 1)
Skin Sensitization (Category 1)
Germ cell mutagenicity (Category 1B)
Carcinogenicity (Category 1A)
Reproductive toxicity (Category 2)
Specific target organ toxicity – repeated exposure, Inhalation (Category 1)
Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictogram



**Section 6: Accidental release measures****General Information:**

Use proper protective equipment as indicated in Section 8.

Personal precautions, protective equipment and emergency procedures

For emergency responders: avoid contact with skin, eyes and clothing. Use respiratory device against the effects of fumes. Wear protective equipment.

For non-emergency personnel: Avoid Inhalation and substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures.

Environmental precautions

Dilute with plenty of water after collecting the material.

Do not allow to enter sewers / surface or ground water.

Inform respective authorities in case of seepage into water course or sewage system.

Methods and material for containment and cleaning up

Cover drains. Collect the liquid with vacuum in a suitable container and absorb the remainder with a porous material (diatomite, acid binders, universal binders, etc.)

Ensure adequate ventilation.

Use neutralizing agent.

Dispose contaminated material as waste according to Section 13.

Reference to other sections

See Section 7 for information on handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

Section 7: Handling and storage**Handling:****Precautions for safe handling**

Avoid contact with skin and eyes.

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Conditions for safe storage, including incompatibilities

Store in cool place. Keep container tightly closed in a dry well-ventilated place. Keep away from combustible materials and sources of ignition and heat. Keep locked up or in an area accessible only to qualified or authorized persons.

Information about storage in one common storage facility: Not required.

Further information about storage conditions: Keep receptacle tightly sealed.

Specific end use(s): No further relevant information available.

Section 8: Exposure controls / personal protection**Control parameters****Ingredients with limit values that require monitoring in the workplace:****1333-82-0 chromium (VI) trioxide**

WEL (Great Britain)	Long-term value: 0.05 mg/m ³ as CR; Carc, Sen
PEL (USA)	Short-term value: C 0.1* mg/m ³ *as CrO ₃
REL (USA)	Long-term value: 0.001 mg/m ³ as CR(VI), 10-hr TWA
TLV (USA)	Long-term value: 0.05 mg/m ³ as CR



Section 4: First aid measures

Description of first aid measures:

Request medical assistance immediately, showing the SDS of this product.

Inhalation:

Seek immediate medical attention. DO NOT DELAY. Remove victim to rest in a well ventilated area or fresh air. In case of irregular breathing or respiratory arrest provide artificial respiration.

Skin contact:

Seek medical attention. DO NOT DELAY. Remove contaminated clothing and shoes. Immediately wash all exposed skin area with plenty of soap and water for at least 15 minutes. Cover burns with dry sterile bandage. Wash contaminated clothing and clean shoes thoroughly before reuse.

Eye contact:

DO NOT DELAY. IMMEDIATELY flush eyes with running water for at least 15 minutes keeping eyelids open. Obtain medical attention if pain, blinking or redness persist.

Ingestion:

Seek immediate medical attention. DO NOT DELAY. DO NOT induce vomiting. Rinse mouth. Give the person several glasses of water ONLY if conscious. Give oxygen if respiration is depressed.

Most important symptoms and effects, both acute and delayed:

No further relevant information available.

Indication of any immediate medical attention and special treatment needed:

No further relevant information available.

Section 5: Firefighting measures

General information:

As in any fire, wear a self-containing breathing apparatus in pressure-demand, MSHA/NIOSH (approved equivalent), and full protective gear.

Conditions of flammability

Not flammable or combustible.

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool containers exposed to flames with water well after the fire is out.

Special protective equipment for fire fighters

Firefighters should wear self-contained breathing apparatus and full fire-fighting turnout gear. Do not enter fire area without proper protective equipment, including respiratory protection. Exercise caution when fighting any chemical fire. Do not inhale in case of fire or combustion

Hazardous combustion products

Hazardous decomposition products formed under fire conditions – can form explosive gas-air mixtures; poisonous gases are produced; chromium oxides.

Explosion data – sensitivity to mechanical impact

No data available

Explosion data – sensitivity to static discharge

No data available

Additional information

Keep receptacles cool with water spray.

Prevent fire-extinguishing water from contaminating surface water or entering the environment.



Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Form: Liquid Colour: Reddish Orange
Odour	Characteristic
Odour threshold	No data available
pH (1% solution in water)	1 – 3 Acidic
Melting point / Freezing point	<0°C (32°F)
Boiling point	>100°C (>212°F)
Flash point	No data available
Evaporation rate	No data available
Flammability	No data available
Upper / lower flammability	No data available
Upper / lower explosive limits	No data available
Vapour pressure	Not available
Vapour density	Not available
Specific gravity	1.34
WaterSolubility	Fully miscible
Partition coefficient:n-octane/water	No data available
Auto ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

Section 10: Stability and reactivity

Reactivity

Reactive Hazard No

Chemical stability Stable under normal temperatures and pressure.

Possibility of hazardous reactions

Hazardous polymerization Hazardous polymerization does not occur.
Hazardous reactions No information available

Conditions to avoid Incompatible materials, excess heat, combustible materials and reducing agents.

Incompatible materials Metals as powders (eg. hafnium, raney nickel), carbides, chlorates, fulmates, picrates, permanganates, alcohol, acetic anhydride, fuels, nitric acid, perchloric acid, pyridine.
Solution is strongly acidic; can ignite organic matter on contact.

Hazardous decomposition products Possible trivalent chromium formation with liberated oxygen.

Section 11: Toxicological information

Information on toxicological effects

Acute toxicity

1333-82-0 chromium (VI) trioxide

LD50: Oral 50 mg/kg (rat) LD50: Dermal 20 mg/kg (rabbit) LC50: Inhalation 0.217 mg/L (rat) 4h
55 mg/kg (rat)

Skin: Strong caustic effect on skin and mucous membrane. Severe burns may occur.

Eye: Strong caustic effect. Corneal burns may occur. May cause permanent damage.

Ingestion: Toxic if swallowed - may be fatal. Causes burns.

Inhalation: Toxic if inhaled. Severe irritant: may cause spasm, inflammation and edema of larynx and bronchi, chemical pneumonitis, and pulmonary edema. Material is extremely destructive to the tissue of the mucous membrane and upper respiratory tract. May cause respiratory tract infection.

**Exposure controls****Engineering measures:**

- Mechanical exhaust required.
- Ensure adequate ventilation, especially in confined areas.
- Ensure eyewash stations and safety showers are close to workstations.

Personal protective equipment**Eye Protection**

Tightly sealed safety goggles / glasses. Face shield.

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (USA) or EN 166 (EU).

Hand protection

Protective gloves.

The selected protective gloves have to satisfy the specifications of EU Directive 89/689/EEC or appropriate government standards.

Gloves must be inspected before prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Skin protection

Complete suit protecting against chemicals. Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection

In case of brief exposure or low pollution use respiratory filter device.

In case of intensive or longer exposure use self-contained respiratory protective device.

Where risk assessment shows air-purifying respirators are appropriate, use full-face respirator with multi-purpose combination (US) or type ABEK (EN14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

General protective and hygienic measures

- Keep away from foods and beverages
- Immediately remove all soiled and contaminated clothing
- Wash hands before breaks and at the end of work
- Store protective clothing separately
- Handle in accordance with good industrial hygiene and safety practice

**Section 13: Disposal considerations****Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging:

The containers and packing materials contaminated with dangerous substances or preparations, have the same treatment as the products.

Recommendation:

Disposal must be made according to official regulations.

Packaging is to be disposed of in the same manner as the product.

Section 14: Transportation information

UN Number: UN1755

Proper shipping name Chromic Acid Solution

Transport hazard class(es)



Class Label 8 Corrosive Liquid, Toxic N.O.S.
8

Packing group: II

Section 15: Regulatory information**WHMIS Classification**

D1B	TOXIC Material causing immediate and serious toxic effects	Toxic by ingestion
D2A	VERY TOXIC Material causing other toxic effects	Toxic by skin absorption
C	Corrosive liquid	Corrosive

Section 16: Other information**List of relevant R phrases, hazard statements, safety phrases and/or precautionary statements.**

H 271	May cause fire or explosion: strong oxidizer.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause allergic skin reaction.
H330	Fatal if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H340	May cause genetic defects.
H350	May cause cancer.
H361f	Suspected of damaging fertility.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life..
H410	Very toxic to aquatic life with long lasting effects.

**Delayed / immediate effects**

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, Eyes and skin. Nausea and stomach pain may occur. Headaches and general malaise may result. Coughing, shortness of breath and burns may occur.

Sensitization

May cause sensitization by inhalation and skin contact.

Mutagenic effects

Mutagenic Ames test: positive

Carcinogenicity

IARC: 1 – Group 1: Carcinogenic to humans (chromium trioxide)

ACGIH No compound of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

Reproductive effects

Possible risk of impaired fertility

Developmental effects

No information available

Teratogenicity

Teratogenic effects have occurred in experimental animals.

Target organs

Eyes: Skin: Respiratory System: Gastrointestinal Tract (GI): Reproductive System

Aspiration hazard

No data available

Potential Health Effects**Inhalation**

May be extremely harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Skin

Toxic if absorbed through skin. Causes skin burns. Causes skin irritation.

Eyes

Causes eye burns. Causes severe eye burns.

Ingestion

Toxic if swallowed.

Additional toxicological information:

RTECS: GB6650000

Section 12: Ecological information**Toxicity****Ecotoxicity**

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Do not empty into drains.

IDENTIFICATION	ACUTE TOXICITY		SPECIES	GENUS
chromium (VI) trioxide (CrO ₃)	LC50	40 mg/L (96h)		Freshwater Fish
CAS: 1333-82-0 EC: 215-607-8	EC ₅₀	0.8 mg/L (48h)	Daphnia magna	Water flea

Persistence and degradability:

No information available

Bioaccumulative potential:

No information available

Mobility in soil:

No information available

Results of PBT and vPvB assessment:

PBT and vPvB assessment not available as chemical safety assessment not required / not conducted.

Other adverse effects

Harmful effect due to pH shift.

General notes

Water danger Class 3: Extremely hazardous for water.

Do not allow product to reach ground water, water course or sewage system even in small quantities.

Must not reach sewage water or drainage ditch undiluted or unneutralized.

Danger to drinking water if even small quantities leak into the ground.

Poisonous for fish and plankton in water bodies.



R9 Explosive when mixed with combustible material.
R24/25 Toxic in contact with skin and if swallowed.
R26 Very toxic by inhalation.
R35 Causes severe burns.
R42/43 May cause sensitization by inhalation and skin contact.
R45 May cause cancer.
R46 May cause heritable genetic damage
R48/23 Toxic: danger of serious damage to health by prolonged exposure through inhalation.
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R62 Possible risk of impaired fertility.

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible) .
S 53 Avoid exposure – obtain special instructions before use.
S 60 This material and/or its container must be disposed of as hazardous waste.
S 61 Avoid release to the environment. Refer to special instructions/ Safety Data Sheet

THIS INFORMATION IS BASED ON OUR PRESENT KNOWLEDGE. HOWEVER, THIS SHALL NOT CONSTITUTE A GUARANTEE FOR ANY SPECIFIC PRODUCT FEATURES AND SHALL NOT ESTABLISH A LEGALLY VALID CONTRACTUAL RELATIONSHIP.

Sources:

- DIR. 67/548/EC, in the latest valid version
- Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006, REACH
- Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008, CLP, in the latest valid version.
- Globally Harmonized System, GHS



Section 4: First aid measures

Inhalation:

Provide fresh air. If not breathing, give artificial respiration. Consult a physician.

Skin contact:

Immediately remove contaminated clothing and shoes. Flush skin thoroughly with cool water for at least 15 minutes. Wash skin with soap and water. Wash clothing. If irritation persists, get medical attention.

Eye contact:

Rinse immediately, carefully and thoroughly with eye-bath or water for at least 15 min. Consult physician

Ingestion:

Rinse mouth immediately with water. Do not induce vomiting.

Section 5: Firefighting measures

Conditions of flammability

Not flammable or combustible.

Suitable extinguishing media

Extinguishing materials should be selected according to the surrounding area. Water spray, carbon dioxide, dry chemical, alcohol foam

Special protective equipment for fire fighters

Firefighters should wear self-contained breathing apparatus.

Hazardous combustion products

This product itself is not combustible.

Explosion data – sensitivity to mechanical impact

No data available

Explosion data – sensitivity to static discharge

No data available

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water,

Section 6: Accidental release measures

Environmental precautions

Do not allow to enter sewers / drains / surface or ground water.

Discharge into the aquatic environment must be avoided.

Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

Dispose of material according to the section on waste disposal.

Section 7: Handling and storage

Precautions for safe handling**Conditions for safe storage**

Keep container tightly closed.

Safety Data Sheet

Issued Date: January 2017

Section 1: Identification of the substance/mixture and of the company/undertaking

PRODUCT IDENTIFIER: MAR Copper pro DFG Maintenance

Application of the substance / mixture: Metal finishing auxiliary

**Details of the supplier of the data sheet
Supplier**MAR-Tech Holdings Inc.
7 Commerce Court
Stoney Creek, Ontario
L8E 4G3

Telephone 1.905.643.1700

Fax 1.905.643.1707

CHEMICAL EMERGENCY NUMBER Canutec (24 Hour) 613-996-6666

Section 2: Hazards Identification

GHS classification**Hazard Statements:**

H314 Causes severe skin burns and eye damage.

H315 Causes skin irritation

H319 Causes serious eye irritation.

Precautionary Statements;

P264 Wash face, hands and any exposed skin thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P305/351/338 **IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, If present and easy to do. Continue rinsing.P301/312/330 **IF SWALLOWED:** Call a POISON CENTRE/doctor if you feel unwell. Rinse mouth.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P501 Dispose contents/container to hazardous or special waste collection point in accordance with local/ regional/ national/ international regulation.

Label Pictogram**Signal word** Danger

Section 3: Composition/information on ingredients

Chemical characterization: Mixtures**Ingredients**

Name	CAS-No.	EC-No.	Index-No.	Concentration
Sulphuric acid	7664-93-9	231-639-5	016-020-00-8	5 – 15%

**Section 10: Stability and reactivity**

<u>Chemical stability</u>	Stable under recommended storage conditions
<u>Possibility of hazardous reactions</u>	Hazardous polymerization does not occur.
<u>Conditions to avoid</u>	No data available
<u>Incompatible materials</u>	Organic materials, combustible material, active metals, alkalis, cyanide, sulfides, amines, nitrates.
<u>Hazardous decomposition products</u>	Thermal decomposition products formed under fire conditions. Carbon monoxide, carbon dioxide, sulphur oxides, nitrogen oxides.

Section 11: Toxicological informationInformation on toxicological effectsAcute toxicityAcute oral toxicity:LD₅₀ Oral Rat 2140 mg/KgAcute inhalation toxicity:LC₅₀ 510 mg/m³ (rat) 2 hoursAcute dermal toxicity:LD₅₀ No data availableSkin: No data availableEye: No data availableIngestion: No data availableInhalation: No data availableGerm cell mutagenicity: No data availableCarcinogenicity: IARC: No compound of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH No compound of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

Reproductive effects: No data availableTeratogenicity: No data availableTarget organs: No data available (Globally Harmonized System)Aspiration hazard: No data availableSynergistic effects: No data availableAdditional information: RTECS: Not available**Section 12: Ecological information**Toxicity No data availableEco toxicity Toxicity to fish 500 mg/l: 96 h Brachydanio rerio
Toxicity to daphnia and other aquatic invertebrates 29 mg/l 24 h Daphnia magnaPersistence and degradability: No data availableBio-accumulative potential: No data availableMobility in soil: No data availablePBT and vPvB assessment: No data availableOther adverse effects An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life.

**Section 8: Exposure controls / personal protection****Control parameters****Exposure guidelines**

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Sulphuric Acid 7664-93-9	TWA: 0.2 mg/m ³ thoracic fraction	TWA: 1 mg/m ³	IDLH: 15 mg/m ³ TWA: 1 mg/m ³

Personal protective equipment**Respiratory protection**

With correct and proper use, and under normal conditions, breathing protection is not required.

Hand protection

Handle with gloves. Gloves must be inspected before prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye Protection

Tightly sealed safety goggles / glasses.

General protective and hygienic measures

Keep away from foods and beverages

Wash hands before breaks and at the end of work

Change contaminated clothing.

Section 9: Physical and chemical properties**Information on basic physical and chemical properties**

Form	Liquid
Colour	Dark Blue
Odour	Distinctive
pH (1% solution in water)	< 1
Melting point / Freezing point	Not established
Boiling point	Not established
Specific Gravity @ 20 ° C	1.07 – 1.09
Flash point	Not applicable
Evaporation rate	Not established
Ignition temperature	Not applicable
Lower explosion limit:	Not applicable
Upper explosion limit:	Not applicable
Vapour pressure:	Not established
Water Solubility:	Completely soluble
Auto- ignition temperature:	Not applicable
Evaporation rate	No data available

**Section 13: Disposal considerations****Product**

Do not empty into drains or the aquatic environment.

Contaminated packaging:

Cleaned containers may be recycled. Handle contaminated packaging in the same way as the substance itself.

Section 14: Transportation information

UN Number: 3264

UN proper shipping name Corrosive liquid, acidic, inorganic. n.o.s. (Sulphuric Acid)

Transport hazard class(es)

Class	8
Label	Corrosive

Packing group: PGIII

Section 15: Regulatory information**WHMIS Classification**

This mixture is not classified as dangerous.

Section 16: Other information

THIS INFORMATION IS BASED ON OUR PRESENT KNOWLEDGE. HOWEVER, THIS SHALL NOT CONSTITUTE A GUARANTEE FOR ANY SPECIFIC PRODUCT FEATURES AND SHALL NOT ESTABLISH A LEGALLY VALID CONTRACTUAL RELATIONSHIP.

Sources:

- DIR. 67/548/EC, in the latest valid version
- Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006, REACH
- Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008, CLP, in the latest valid version.
- Globally Harmonized System, GHS



Section 5: Firefighting measures

Conditions of flammability
Not flammable or combustible.

Suitable extinguishing media
Extinguishing materials should be selected according to the surrounding area.

Special protective equipment for fire fighters
Firefighters should wear self-contained breathing apparatus.

Hazardous combustion products
This product itself is not combustible.

Explosion data – sensitivity to mechanical impact
No data available

Explosion data – sensitivity to static discharge
No data available

Additional information
Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water,

Section 6: Accidental release measures

Environmental precautions
Do not allow to enter sewers / drains / surface or ground water.
Discharge into the aquatic environment must be avoided.

Methods and material for containment and cleaning up
Soak up with inert absorbent material (e.g. sand, diatomaceous earth, acid- or universal binding agents).
Dispose of material according to the section on waste disposal.

Section 7: Handling and storage

Precautions for safe handling

Conditions for safe storage
Keep container tightly closed.

Section 8: Exposure controls / personal protection

Control parameters

Exposure controls

Personal protective equipment

Respiratory protection
With correct and proper use, and under normal conditions, breathing protection is not required.

Hand protection
Handle with gloves. Gloves must be inspected before prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye Protection
Tightly sealed safety goggles / glasses.

General protective and hygienic measures



Safety Data Sheet

Issued Date: January 2017

Section 1: Identification of the substance/mixture and of the company/undertaking

PRODUCT IDENTIFIER: MAR Copper Pro DFG Make-up

Application of the substance / mixture: Metal finishing auxiliary

**Details of the supplier of the data sheet
Supplier**MAR-Tech Holdings Inc.
7 Commerce Court
Stoney Creek, Ontario
L8E 4G3

Telephone 1.905.643.1700

Fax 1.905.643.1707

CHEMICAL EMERGENCY NUMBER Canutec (24 Hour) 613-996-6666

Section 2: Hazards Identification

WHMIS Classification

This mixture is not classified as dangerous.

GHS classification

This mixture is not classified as dangerous according to Regulation (EC) No. 1272/2008.

Label elements

Section 3: Composition/information on ingredients

Chemical characterization: Mixtures**Hazardous ingredients**

Name	CAS-No.	EC-No.	Index-No.	Concentration

Section 4: First aid measures

Inhalation:

Provide fresh air.

Skin contact:

Wash with generous amount of water. Change contaminated clothing.

Eye contact:

Rinse immediately, carefully and thoroughly with eye-bath or water.

Ingestion:

Rinse mouth immediately and drink large amounts of water or milk. Do not induce vomiting.



Germ cell mutagenicity: No data available

Carcinogenicity: IARC: No compound of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH No compound of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

Reproductive effects: No data available

Teratogenicity: No data available

Target organs: No data available (Globally Harmonized System)

Aspiration hazard: No data available

Synergistic effects: No data available

Additional information: RTECS: Not available

Section 12: Ecological information

Toxicity No data available

Eco toxicity No data available

Persistence and degradability: No data available

Bio-accumulative potential: No data available

Mobility in soil: No data available

PBT and vPvB assessment: No data available

Other adverse effects An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life.

Section 13: Disposal considerations

Product

Do not empty into drains or the aquatic environment.

Contaminated packaging:

Cleaned containers may be recycled. Handle contaminated packaging in the same way as the substance itself.

Section 14: Transportation information

UN Number: Not Regulated

UN proper shipping name Not Regulated

Transport hazard class(es)

Class Non Hazardous

Label Not Applicable

Packing group: Not Applicable

Section 15: Regulatory information

WHMIS Classification

This mixture is not classified as dangerous.

Section 16: Other information

THIS INFORMATION IS BASED ON OUR PRESENT KNOWLEDGE. HOWEVER, THIS SHALL NOT CONSTITUTE A GUARANTEE FOR ANY SPECIFIC PRODUCT FEATURES AND SHALL NOT ESTABLISH A LEGALLY VALID CONTRACTUAL RELATIONSHIP.



Keep away from foods and beverages
Wash hands before breaks and at the end of work
Change contaminated clothing.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Form	Liquid
Colour	Clear Colourless
Odour	Slight
pH (1% solution in water)	2 - 3
Melting point / Freezing point	0 ° C
Boiling point	100 ° C
Specific Gravity @ 20 ° C	1.0 – 1.01
Flash point	Not applicable
Evaporation rate	Not established
Ignition temperature	Not applicable
Lower explosion limit:	Not applicable
Upper explosion limit:	Not applicable
Vapour pressure:	Not established
Specific Gravity:	1.22 – 1.26 g/cm ³
Water Solubility:	Completely soluble
Auto- ignition temperature:	Not applicable
Evaporation rate	No data available

Section 10: Stability and reactivity

Reactivity Stable at normal temperatures and pressure.

Chemical stability Stable under normal conditions.

Possibility of hazardous reactions None under normal processing.

Conditions to avoid Avoid storage with incompatible materials, freezing temperatures and excessive heat.

Incompatible materials Strong mineral acids. Oxidizing materials.

Hazardous decomposition products Thermal decomposition may generate oxides of Sulphur, smoke and fumes.

Section 11: Toxicological information

Information on toxicological effects

Acute toxicity

Acute oral toxicity:

LD₅₀ No data available

Acute inhalation toxicity:

LC₅₀ No data available

Acute dermal toxicity:

LD₅₀ No data available

Skin: Prolonged contact may cause redness and irritation. May cause more severe response if skin is scratched or cut.

Eye: Contact with eyes may cause irritation and possible inflammation of the conjunctive.

Ingestion: May cause irritation to the mouth, throat, esophagus and stomach.

Inhalation: May cause irritation of the respiratory tract.

**Sources:**

- DIR. 67/548/EC, in the latest valid version
- Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006, REACH
- Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008, CLP, in the latest valid version.
- Globally Harmonized System, GHS



Safety Data Sheet

Issued Date: January 2017

Section 1: Identification of the substance/mixture and of the company/undertaking

PRODUCT IDENTIFIER: MAR Copper Pro DFG Hardener

Application of the substance / mixture: Metal finishing auxiliary

**Details of the supplier of the data sheet
Manufacturer / Supplier**MAR-Tech Holdings Inc.
7 Commerce Court
Stoney Creek, Ontario
L8E 4G3

Telephone 1.905.643.1700

Fax 1.905.643.1707

CHEMICAL EMERGENCY NUMBER Canutec (24 Hour) 613-996-6666

Section 2: Hazards Identification

WHMIS Classification

This mixture is not classified as dangerous.

GHS classification

This mixture is not classified as dangerous according to Regulation (EC) No. 1272/2008.

Label elements

Section 3: Composition/information on ingredients

Chemical characterization: Mixtures**Hazardous ingredients**

Name	CAS-No.	EC-No.	Index-No.	Concentration

Section 4: First aid measures

Inhalation:

Provide fresh air.

Skin contact:

Wash with generous amount of water. Change contaminated clothing.

Eye contact:

Rinse immediately, carefully and thoroughly with eye-bath or water.

Ingestion:

Rinse mouth immediately and drink large amounts of water or milk. Do not induce vomiting.

**Section 5: Firefighting measures**

Conditions of flammability
Not flammable or combustible.

Suitable extinguishing media
Extinguishing materials should be selected according to the surrounding area.

Special protective equipment for fire fighters
Firefighters should wear self-contained breathing apparatus.

Hazardous combustion products
This product itself is not combustible.

Explosion data – sensitivity to mechanical impact
No data available

Explosion data – sensitivity to static discharge
No data available

Additional information
Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water,

Section 6: Accidental release measures

Environmental precautions
Do not allow to enter sewers / drains / surface or ground water.
Discharge into the aquatic environment must be avoided.

Methods and material for containment and cleaning up
Soak up with inert absorbent material (e.g. sand, diatomaceous earth, acid- or universal binding agents).
Dispose of material according to the section on waste disposal.

Section 7: Handling and storage

Precautions for safe handling

Conditions for safe storage
Keep container tightly closed.

Section 8: Exposure controls / personal protection**Control parameters****Exposure controls****Personal protective equipment**

Respiratory protection
With correct and proper use, and under normal conditions, breathing protection is not required.

Hand protection
Handle with gloves. Gloves must be inspected before prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye Protection
Tightly sealed safety goggles / glasses.

General protective and hygienic measures



Keep away from foods and beverages
Wash hands before breaks and at the end of work
Change contaminated clothing.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Form	Liquid
Colour	Colourless to amber
Odour	Odourless
pH (1% solution in water)	6 - 7
Melting point / Freezing point	No data available
Boiling point	100 °C
Specific Gravity @ 20 °C	1.0 – 1.02
Solubility:	Soluble

Section 10: Stability and reactivity

Chemical stability No data available

Possibility of hazardous reactions No data available

Conditions to avoid No data available

Incompatible materials No data available

Hazardous decomposition products No data available

Section 11: Toxicological information

Information on toxicological effects

Acute toxicity

Acute oral toxicity:

LD₅₀ No data available

Acute inhalation toxicity:

LC₅₀ No data available

Acute dermal toxicity:

LD₅₀ No data available

Skin: No data available

Eye: No data available

Ingestion: No data available

Inhalation: No data available

Germ cell mutagenicity: No data available

Carcinogenicity: IARC: No compound of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH No compound of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

Reproductive effects: No data available

Teratogenicity: No data available

Target organs: No data available (Globally Harmonized System)



Aspiration hazard:	No data available
Synergistic effects:	No data available
Additional information:	RTECS: Not available

Section 12: Ecological information

Toxicity	No data available
Eco toxicity	No data available
Persistence and degradability:	No data available
Bio-accumulative potential:	No data available
Mobility in soil:	No data available
PBT and vPvB assessment:	No data available
Other adverse effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life.

Section 13: Disposal considerations

Product

Do not empty into drains or the aquatic environment.

Contaminated packaging:

Cleaned containers may be recycled. Handle contaminated packaging in the same way as the substance itself.

Section 14: Transportation information

UN Number:	Not Regulated
UN proper shipping name	MAR Copper Pro DFG Hardener
Transport hazard class(es)	
Class	Non Hazardous
Label	Not Applicable
Packing group:	Not Applicable

Section 15: Regulatory information

WHMIS Classification

This mixture is not classified as dangerous.

Section 16: Other information

THIS INFORMATION IS BASED ON OUR PRESENT KNOWLEDGE. HOWEVER, THIS SHALL NOT CONSTITUTE A GUARANTEE FOR ANY SPECIFIC PRODUCT FEATURES AND SHALL NOT ESTABLISH A LEGALLY VALID CONTRACTUAL RELATIONSHIP.

Sources:

- DIR. 67/548/EC, in the latest valid version
- Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006, REACH
- Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008, CLP, in the latest valid version.
- Globally Harmonized System, GHS



Safety Data Sheet

Issued Date: January 2017

Section 1: Identification of the substance/mixture and of the company/undertaking**PRODUCT IDENTIFIER:** MAR Mist Suppressant CP

Application of the substance / mixture: Metal finishing auxiliary

**Details of the supplier of the data sheet
Manufacturer / Supplier**MAR-Tech Holdings Inc.
7 Commerce Court
Stoney Creek, Ontario
L8E 4G3

Telephone 1.905.643.1700

Fax 1.905.643.1707

CHEMICAL EMERGENCY NUMBER Canutec (24 Hour) 613-996-6666**Section 2: Hazards Identification****WHMIS Classification**

This mixture is not classified as dangerous.

GHS classification

This mixture is not classified as dangerous according to Regulation (EC) No. 1272/2008.

Label elements**Section 3: Composition/information on ingredients****Chemical characterization:** Mixtures**Hazardous ingredients**

Name	CAS-No.	EC-No.	Index-No.	Concentration

Section 4: First aid measures**Inhalation:**

Provide fresh air.

Skin contact:

Wash with generous amount of water. Change contaminated clothing.

Eye contact:

Rinse immediately, carefully and thoroughly with eye-bath or water.

Ingestion:

Rinse mouth immediately and drink large amounts of water or milk. Do not induce vomiting.

**Section 5: Firefighting measures****Conditions of flammability**

Not flammable or combustible.

Suitable extinguishing media

Extinguishing materials should be selected according to the surrounding area.

Special protective equipment for fire fighters

Firefighters should wear self-contained breathing apparatus.

Hazardous combustion products

This product itself is not combustible.

Explosion data – sensitivity to mechanical impact

No data available

Explosion data – sensitivity to static discharge

No data available

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water,

Section 6: Accidental release measures**Environmental precautions**

Do not allow to enter sewers / drains / surface or ground water.

Discharge into the aquatic environment must be avoided.

Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

Dispose of material according to the section on waste disposal.

Section 7: Handling and storage**Precautions for safe handling****Conditions for safe storage**

Keep container tightly closed.

Section 8: Exposure controls / personal protection**Control parameters****Exposure controls****Personal protective equipment****Respiratory protection**

With correct and proper use, and under normal conditions, breathing protection is not required.

Hand protection

Handle with gloves. Gloves must be inspected before prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye Protection

Tightly sealed safety goggles / glasses.

General protective and hygienic measures



Keep away from foods and beverages
Wash hands before breaks and at the end of work
Change contaminated clothing.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Form	Liquid
Colour	Colourless to amber
Odour	Odourless
pH (1% solution in water)	1 - 3
Melting point / Freezing point	No data available
Boiling point	100 °C
Specific Gravity @ 20 °C	1.0 – 1.02
Solubility:	Soluble

Section 10: Stability and reactivity

Chemical stability No data available

Possibility of hazardous reactions No data available

Conditions to avoid No data available

Incompatible materials No data available

Hazardous decomposition products No data available

Section 11: Toxicological information

Information on toxicological effects

Acute toxicity

Acute oral toxicity:

LD₅₀ No data available

Acute inhalation toxicity:

LC₅₀ No data available

Acute dermal toxicity:

LD₅₀ No data available

Skin: No data available

Eye: No data available

Ingestion: No data available

Inhalation: No data available

Germ cell mutagenicity: No data available

Carcinogenicity: IARC: No compound of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH No compound of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

Reproductive effects: No data available

Teratogenicity: No data available

Target organs: No data available (Globally Harmonized System)



Aspiration hazard: No data available
Synergistic effects: No data available
Additional information: RTECS: Not available

Section 12: Ecological information

Toxicity No data available
Eco toxicity No data available
Persistence and degradability: No data available
Bio-accumulative potential: No data available
Mobility in soil: No data available
PBT and vPvB assessment: No data available
Other adverse effects An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life.

Section 13: Disposal considerations

Product

Do not empty into drains or the aquatic environment.

Contaminated packaging:

Cleaned containers may be recycled. Handle contaminated packaging in the same way as the substance itself.

Section 14: Transportation information

UN Number: Not Regulated
UN proper shipping name MAR Mist Suppressant CP
Transport hazard class(es)
 Class Non Hazardous
 Label Not Applicable
Packing group: Not Applicable

Section 15: Regulatory information

WHMIS Classification

This mixture is not classified as dangerous.

Section 16: Other information

THIS INFORMATION IS BASED ON OUR PRESENT KNOWLEDGE. HOWEVER, THIS SHALL NOT CONSTITUTE A GUARANTEE FOR ANY SPECIFIC PRODUCT FEATURES AND SHALL NOT ESTABLISH A LEGALLY VALID CONTRACTUAL RELATIONSHIP.

Sources:

- DIR. 67/548/EC, in the latest valid version
- Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006, REACH
- Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008, CLP, in the latest valid version.
- Globally Harmonized System, GHS

Section II. Hazardous Ingredients

Name	CAS#	% by weight	TLV/PEL	LC ₅₀ /LD ₅₀
1) 4-undeconal, 7-ethyl-2-methyl Sulphate, sodium salt	139-88-8	3 - 5	Not Available	Not Available
2) Diethylene glycol ethyl ether	111-90-0	1 - 3	Not Available	Not Available
3) Sodium Chloride	7647-14-5	0.1 - 0.2	Not Available	Not Available
4 Water	732-18-5	90 - 98	Not Available	Not Available

Section III. Physical Data

Physical state & appearance	Liquid
Odour	Slight
Colour	Clear
pH (1% solution in water)	5 - 7 (Acid)
Odour threshold	Not available
Evaporation rate	Not available
Specific gravity	1.06
Freezing point	<10°C
Volatility	Not available
Melting point	Not Available
Boiling point	>100°C (212°F)
Vapour pressure	17.5 mm Hg @ 25 °C
Vapour density	Not available
Viscosity	Not available
Coefficient of water / oil distribution	Not available
Ionicity	Not available
Critical temperature	Not available
Instability temperature	Not available
Conditions of instability	No additional remarks
Solubility in water	Miscible

Section IV. Fire and Explosion Data

Flammability	Non-flammable
Flash point	Non-combustible
Upper flammability limit	Not applicable
Lower flammability limit	Not available
Auto ignition temperature	Not applicable
Extinguishing media	Not applicable
Explosion Data	Not sensitive to mechanical impact or static discharge

Material Safety Data Sheet

Issued Date: January, 2014

Section 1 : Product Identification and uses.

Product Name: MAR Nickel Pro 100 WA

Chemical Family: Alcohol Sulphate, sodium salt

DSL: CEPA DSL: Sodium Tetradecyl sulphate

Manufacture: Dynamix Inc.
91 Esna Park, Unit #7
Markham, Ontario
L3R 2S2
1-905-477-0900

Supplier: Mar-Tech Holdings Inc.
700 – 20 Hughson St. S
Hamilton, Ontario
L8N 2A1
(905)-296-0179

Material uses: Metal Finishing Industry

Section 1A. First Aid measures

Eye contact: Check for and remove any contact lenses. IMMEDIATELY flush eyes with running water for at least 15 minutes keeping eyelids open. COLD water may be used. Seek medical attention immediately.

Skin contact: After contact with skin, wash immediately with plenty of water for 15 minutes. Gently and thoroughly wash the contaminated skin with running water and disinfectant soap. Be particularly careful to clean folds, crevices, creases and groin. COLD water may be used. If irritation persists, seek medical attention. Wash contaminated clothing and clean shoes thoroughly before reusing.

Slight inhalation: Allow the victim to rest in a well-ventilated area. If not breathing, have a qualified person administer artificial respiration. Seek immediate medical attention.

Slight ingestion: DO NOT induce vomiting. Have conscious person drink several glasses of water NEVER give an unconscious person anything to ingest. Seek immediate medical attention.

Section VIII. Classification

TDG road / rail	Not controlled under TDG. (Canada)
WHMIS	CLASS D-2A: Material causing other toxic effects. (Very Toxic) CLASS D-2B: Material causing other very toxic effects. (Toxic)
Shipping name	Nickel Pro 100 WA

Section IX. Protective Clothing

Splash goggles, laboratory coat, gloves and a vapour respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent.

Section X. Other Information

References	Not available.
For general information call:	(905)- 296-0179
For chemical emergency call:	Canutec (24 Hour) 613-996-6666

Disclaimer:

The data contained herein is based on information that MAR-TECH believes to be reliable, but not expressed or implied warranty is made with regard to the accuracy of such data or its suitability for a given situation. Such data relates only to the specific product described and not to such products in combination with any other product and no agent of MAR-TECH is authorized to vary any of such data. MAR-TECH and its agents disclaim all liability for any action taken or foregone on reliance upon such data.

Section V. Hazardous Reactivity Data

Stability	Stable
Decomposition	Sulphur oxide, carbon monoxide
Polymerization	Will not occur
Degradability	Long-term degradation products may arise.
Corrosivity	Not available.
Reactivity	Strong oxidizing agent

Section VI. Toxicological Properties

Routes of entry	Absorbed through skin, eye contact, inhalation and ingestion
TLV	Not available
Toxicity to animals	LD ₅₀ : 5 grams per Kf (oral-rat) LC ₅₀ : Not available
Chronic effects on humans	CARCINOGENIC EFFECTS: Classified A5, not suspected for humans. By ACGIH (MIXTURE) MUTAGENIC EFFECTS: Not available TERATOGENIC EFFECTS: Not available DEVELOPMENTAL TOXICITY: Not available There is no known effect from chronic exposure to this product. Repeated or prolonged exposure is not known to aggravate medical conditions.
Acute effects on humans	Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation (lung irritant). Non-corrosive for skin. Severe over-exposure can result in death.

Section VII. Preventative Measures

Waste water	Recycle if possible. Consult your local or regional authorities
Storage	Keep container tightly closed. Keep in a cool well ventilated.
Precautions	Keep locked up. DO NOT ingest. Do not breathe fumes, vapours or spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advise. Show the container and label
Small spills and leaks	Dilute with water and mop up, or absorb with an inert DRY material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface. Dispose according to local and regional authority requirements.
Large spills and leaks	No additional information is available. Absorb with an inert material and put this material in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface. Dispose according to local and regional authority requirements.
Protective clothing in large spills	Splash goggles. Boots. Gloves.



Safety Data Sheet

Issued Date: January 2015

Section 1: Identification of the substance/mixture and of the company/undertaking

PRODUCT IDENTIFIER: MAR Nickel Pro 310-C

Application of the substance / mixture: Metal finishing auxiliary

**Details of the supplier of the data sheet
Manufacturer / Supplier**MAR-Tech Holdings Inc.
7 Commerce Court
Stoney Creek, Ontario
L8E 4G3

Telephone 1.905.643.1700

Fax 1.905.643.1707

CHEMICAL EMERGENCY NUMBER Canutec (24 Hour) 613-996-6666

Section 2: Hazards Identification

WHMIS Classification

This mixture is not classified as dangerous.

GHS classification

This mixture is not classified as dangerous according to Regulation (EC) No. 1272/2008.

Label elements

Section 3: Composition/information on ingredients

Chemical characterization: Mixtures**Hazardous ingredients**

Name	CAS-No.	EC-No.	Index-No.	Concentration

Section 4: First aid measures

Inhalation:

Provide fresh air.

Skin contact:

Wash with generous amount of water. Change contaminated clothing.

Eye contact:

Rinse immediately, carefully and thoroughly with eye-bath or water.

Ingestion:

Rinse mouth immediately and drink large amounts of water or milk. Do not induce vomiting.

**Section 5: Firefighting measures****Conditions of flammability**

Not flammable or combustible.

Suitable extinguishing media

Extinguishing materials should be selected according to the surrounding area.

Special protective equipment for fire fighters

Firefighters should wear self-contained breathing apparatus.

Hazardous combustion products

This product itself is not combustible.

Explosion data – sensitivity to mechanical impact

No data available

Explosion data – sensitivity to static discharge

No data available

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water,

Section 6: Accidental release measures**Environmental precautions**

Do not allow to enter sewers / drains / surface or ground water.

Discharge into the aquatic environment must be avoided.

Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

Dispose of material according to the section on waste disposal.

Section 7: Handling and storage**Precautions for safe handling****Conditions for safe storage**

Keep container tightly closed.

Section 8: Exposure controls / personal protection**Control parameters****Exposure controls****Personal protective equipment****Respiratory protection**

With correct and proper use, and under normal conditions, breathing protection is not required.

Hand protection

Handle with gloves. Gloves must be inspected before prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye Protection

Tightly sealed safety goggles / glasses.

General protective and hygienic measures



Keep away from foods and beverages
Wash hands before breaks and at the end of work
Change contaminated clothing.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Form	Liquid
Colour	Clear
pH (1% solution in water)	7 (neutral)
Melting point / Freezing point	<0 ° C
Boiling point	>105 ° C
Flash point	No data available
Ignition temperature	No data available
Lower explosion limit	No data available
Vapour pressure	No data available
Specific Gravity @ 20 ° C	1.06
Solubility:	Complete in water
Odour	Slight
Odour threshold	No data available
Evaporation rate	No data available

Section 10: Stability and reactivity

Chemical stability No data available

Possibility of hazardous reactions No data available

Conditions to avoid No data available

Incompatible materials No data available

Hazardous decomposition products No data available

Section 11: Toxicological information

Information on toxicological effects

Acute toxicity

Acute oral toxicity:

LD₅₀ Oral – Rat – 14,200 mg/kg

Acute inhalation toxicity:

LC₅₀ No data available

Acute dermal toxicity:

LD₅₀ No data available

Skin: No data available

Eye: No data available

Ingestion: No data available

Inhalation: No data available

Germ cell mutagenicity: No data available



Carcinogenicity: IARC: No compound of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No compound of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

Reproductive effects: No data available
Teratogenicity: No data available
Target organs: No data available (Globally Harmonized System)
Aspiration hazard: No data available
Synergistic effects: No data available
Additional information: RTECS: Not available

Section 12: Ecological information

Toxicity No data available
Ecotoxicity No data available
Persistence and degradability: No data available
Bio-accumulative potential: No data available
Mobility in soil: No data available
PBT and vPvB assessment: No data available
Other adverse effects An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life.

Section 13: Disposal considerations

Product

Do not empty into drains or the aquatic environment.

Contaminated packaging:

Cleaned containers may be recycled. Handle contaminated packaging in the same way as the substance itself.

Section 14: Transportation information

UN Number: Not Regulated

Proper shipping name: MAR Nickel Pro 310-C

Transport hazard class(es)

Class: Non Hazardous
Label: Not Applicable

Packing group: Not Applicable

Section 15: Regulatory information

WHMIS Classification

This mixture is not classified as dangerous.

Section 16: Other information



THIS INFORMATION IS BASED ON OUR PRESENT KNOWLEDGE. HOWEVER, THIS SHALL NOT CONSTITUTE A GUARANTEE FOR ANY SPECIFIC PRODUCT FEATURES AND SHALL NOT ESTABLISH A LEGALLY VALID CONTRACTUAL RELATIONSHIP.

Sources:

- DIR. 67/548/EC, in the latest valid version
- Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006, REACH
- Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008, CLP, in the latest valid version.
- Globally Harmonized System, GHS

Appendix E

Limitations

LIMITATIONS

1. The work performed in the preparation of this report and the conclusions presented are subject to the following:
 - (a) The Standard Terms and Conditions which form a part of our Professional Services Contract;
 - (b) The Scope of Services;
 - (c) Time and Budgetary limitations as described in our Contract; and
 - (d) The Limitations stated herein.
2. No other warranties or representations, either expressed or implied, are made as to the professional services provided under the terms of our Contract, or the conclusions presented.
3. The conclusions presented in this report were based, in part, on visual observations of the Site and attendant structures. Our conclusions cannot and are not extended to include those portions of the Site or structures, which are not reasonably available, in Wood's opinion, for direct observation.
4. The environmental conditions at the Site were assessed, within the limitations set out above, having due regard for applicable environmental regulations as of the date of the inspection. A review of compliance by past owners or occupants of the Site with any applicable local, provincial or federal by-laws, orders-in-council, legislative enactments and regulations was not performed.
5. The Site history research included obtaining information from third parties and employees or agents of the owner. No attempt has been made to verify the accuracy of any information provided, unless specifically noted in our report.
6. Where testing was performed, it was carried out in accordance with the terms of our contract providing for testing. Other substances, or different quantities of substances testing for, may be present on Site and may be revealed by different or other testing not provided for in our contract.
7. Because of the limitations referred to above, different environmental conditions from those stated in our report may exist. Should such different conditions be encountered, Wood must be notified in order that it may determine if modifications to the conclusions in the report are necessary.
8. The utilization of Wood's services during the implementation of any remedial measures will allow Wood to observe compliance with the conclusions and recommendations contained in the report. Wood's involvement will also allow for changes to be made as necessary to suit field conditions as they are encountered.
9. This report is for the sole use of the party to whom it is addressed unless expressly stated otherwise in the report or contract. Any use which any third party makes of the report, in whole or the part, or any reliance thereon or decisions made based on any information or conclusions in the report is the sole responsibility of such third party. Wood accepts no responsibility whatsoever for damages or loss of any nature or kind suffered by any such third party as a result of actions taken or not taken or decisions made in reliance on the report or anything set out therein.
10. This report is not to be given over to any third party for any purpose whatsoever without the written permission of Wood.

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