DEVELOPER **418-LIQUID**

Safety Data Sheet

Section 1: Product and Company Identification

Product Name: 418 Developer **MSDS Code:** 418

Related Part #: 418-500ML

Use: Developer for MG Chemicals pre-sensitized boards

Emergency Contact

CHEMTREC ☎: 1-800-424-9300 (**For hazardous material incidents ONLY**—leaks, spills, fires, exposures or accidents)

Manufacturer: MG Chemicals (Head Office), 9347–193 Street, Surrey, B.C., V4N 4E7

Technical Contacts: ☎ 1-800-201-8822 **FAX** 1-800-708-9888

E-MAIL: sds@mgchemicals.com **WEB** www.mgchemicals.com

Section 2: Hazards Identification

WHMIS Classification

E – Corrosive Material

GHS Pictograms

Signal Word
Danger

Continued on the next page

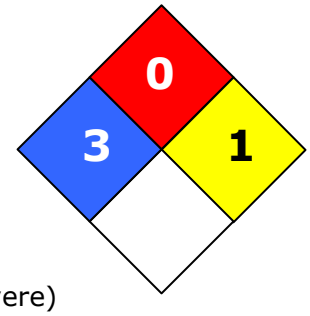
GHS Categories

Criteria	Category	Signal Word	Pictograms
Skin Corrosion Eye Corrosion	1A 1	Danger Danger	
Harmful to aquatic life Acute	3	*None*	No Symbol Mandated

HMIS® RATING

HEALTH:	**3**
FLAMMABILITY:	**0**
PHYSICAL HAZARD:	**1**
PERSONAL PROTECTION:	

NFPA® 704 CODES



Approximate HMIS and NFPA Risk Ratings Legend:
0 (Low or none); 1 (Slight); 2 (Moderate); 3 (Serious); 4 (Severe)

Physical Hazards

GHS Code: Hazard Statement
Not classifiable

Health Hazards

GHS Code: Hazard Statement
H314: Causes severe skin burns and eye damage

Environmental Hazards

GHS Code: Hazard Statement
H402: Harmful to aquatic life

Other Hazards

Not applicable

Precautionary Statements

P280: Wear protective gloves/clothing/eye 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

P405: Store locked up

Exposure Routes and Symptoms Summary

Eyes	Causes serious eye burns.
Skin	Causes serious skin burns. May lead to deep ulcers.
Inhalation	Can damage tissue of the mucous membrane and upper respiratory tract.
Ingestion	May be harmful if swallowed. Causes burns to the gastrointestinal tract.
Chronic	Prolonged or repeated skin contact may cause dermatitis

Section 3: Hazardous Ingredients

CAS #	Chemical Name	Wt%
1310-73-2	sodium hydroxide	7–11%

Note: de-ionized water is the main component.

Section 4: First Aid Measures

Exposure Condition	*GHS Code: Precautionary Statement*
IF IN EYES	P305
Symptoms	Immediate: *redness, pain, blurred vision, severe burns*
Response	P351: Rinse cautiously with water for several minutes. P338: Remove contact lenses, if present and easy to do Continue rinsing. (Also rinse during transport to hospital.) P310: Immediately call a POISON CENTRE/doctor
IF ON SKIN (or hair)	P303
Symptoms	Immediate: *soapy sensation, redness, pain, burns, blisters*
Response	P361: Take off immediately contaminated clothing P351: Rinse cautiously with water for several minutes P310: Immediately call a POISON CENTRE/doctor
IF INHALED	P304
Symptoms	Immediate: *coughing, wheezing, shortness of breath, inflammation, burning sensation*
Response	P340: Remove person to fresh air (out of the contaminated zone) and keep comfortable for breathing P310: Immediately call a POISON CENTRE/doctor
IF SWALLOWED	P301
Symptoms	Immediate: *mouth burns, burning sensation in throat and chest, abdominal pain, nausea, vomiting, shock or collapse*
Response	P330: Rinse mouth P331: Do NOT induce vomiting P310: Immediately call a POISON CENTRE/doctor

Note: GHS codes and corresponding precaution statements are used when available.

Section 5: Fire Fighting Measures

Auto-ignition Temperature	Not available	**Flash Point**	Not applicable	**LFL [LEL]**[b)] **UFL [UEL]**	Not applicable

In case of fire	P370
Response	P378: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish.
Combustion Products	Produces sodium oxides.
Fire-Fighter	Wear self-contained breathing apparatus for fire fighting
General Information	Will not burn. Highly caustic material—avoid skin or eye contact or inhalation of fumes or mist. Solution may react violently with acids and metals to form flammable explosive gases.

Note: The GHS codes and the GHS precaution statements are used. The format is *GHS Codes: Statements*.

b) LFL = Lower Flammability [or Explosion] Limit (in volume %);
UFL = Upper Flammability [or Explosion] Limit (in volume %)

Section 6: Accidental Release Measures

Personal Protection: See Section 8. Avoid breathing the mist/vapors.

Containment Avoid release to the environment.

Cleaning Sprinkle inert absorbent compound onto spill, then sweep into the container. You may neutralize residues with low concentration acetic acid (also known as vinegar). Rinse spill area water to remove the last traces.

RECOMMENDATION: Use a grounded stainless steel or carbon steel container.

Disposal Dispose of spill waste according to Section 13.

Section 7: Handling and Storage

Prevention P262: Do not get in eye, on skin, or on clothing.

P260 + P271 + P284: Do not breath mist/vapors/spray.

P270: Do not eat, drink, or smoke when using this product.

Handling P280: Wear protective gloves/clothing/eye protection.

RECOMMENDATION: Wear neoprene, butyl rubber, nitrile or other impervious gloves with breakthrough time greater than intended use period.

P264: Wash hands thoroughly after handling.

Storage P233+ P405: Keep container tightly closed. Store locked up.

RECOMMENDATION: Keep in a dry and clean area, away from foods, feedstuffs, strong acids, and incompatible metals.

Note: The GHS codes and the GHS precaution statements are used.

Section 8: Exposure Controls/Personal Protection

Routes of Entry

Eyes, ingestion, inhalation, and skin

Substances with Occupational Exposure Limit Values

Chemical Name	Country	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
sodium hydroxide	ACGIH TWA	2 mg/m^3	—
	U.S.A. OSHA PEL	2 mg/m^3	—
	Canada AB	2 mg/m^3	—
	Canada BC	2 mg/m^3	—
	Canada ON	2 mg/m^3	—
	Canada QC	2 mg/m^3	—

Note: Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH[2], OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from by RTECS database[1] of the Canadian Centre for Occupational Health and Safety (CCOHS) a data from suppliers' SDS were also consulted. Short term exposure limits (STEL) are for 15 min and long term permissible exposure limits (PEL) for 8 h.

a) Reciprocal calculation based on group guidance values

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Engineering Controls

Ventilation Keep airborne concentrations below exposure limits.

Personal Protective Equipment

Eye protection Wear appropriate protective eyeglasses or chemical safety goggles.

RECOMMENDATION: Use safety glasses with lateral protection (side shields).

Skin Protection Wear appropriate protective clothing to prevent skin contact.

RECOMMENDATION: Use of protective gloves in butyl rubber, latex, neoprene, or other chemically resistant gloves.

Respiratory Protection If exposed to mist, wear air-purifying respirator with a full-face mask.

RECOMMENDATION: Consult your local safety supply store to ensure your respirator has filter cartridges appropriate for the ingredients listed in section 3 of this MSDS, and that the respirator is fitted to the employee by a professional.

General Hygiene Considerations

Wash hands thoroughly with water and soap after handling.

Section 9: Physical and Chemical Properties

Physical State	Liquid	**Odor**	odorless	**Odor Threshold**	Not applicable
Appearance	Clear	**Specific Gravity**	1.1	**Freezing Point**	Not available
Boiling Point	≥100 °C [≥212 °F]	**Vapor Pressure @ 16 °C**	1.5 mmHg [0.2 kPa]	**Evapora-tion Rate**	Not available
Autoignition Temperature	Not available	**Flash Point**	Not applicable	**Vapor Density**	Not available
Lower Flammability Limit	Not applicable	**Upper Flammability Limit**	Not applicable	**Decompos-ition Temp.**	Not available
Viscosity	Not available	**Partition Coefficient**	Not available	**Solubility in Water** [a)]	111 g NaOH in 100 g H2O
pH	14				

a) NaOH solubility is 111 g / 100 g water

Section 10: Stability and Reactivity

Stabilities	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Vapors may form explosive mixture with air.
Incompatibilities	Strong oxidizing agents, strong acids, metals (zinc, aluminum, tin, and so on), ammonium salts
Polymerization	Will not occur
Decomposition	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5

Section 11: Toxicological Information

Skin corrosion/irritation	Causes severe skin burns. Prolonged or repeated skin contact may cause dermatitis
Serious eye damage/irritation	Causes severe eye damage.
Sensitization (allergic reactions)	No data available
Carcinogenicity (risk of cancer)	Not classified or listed as a carcinogen by IARC, ACGIH, CA Prop 65, or NTP
Mutagenicity (risk of heritable genetic effects)	No data available
Reproductive Toxicity (risk to sex functions)	No data available
Teratogenicity (risk of fetus malformation)	No data available
STOT-single exposure	No data available.
STOT-repeated exposure	No data available.
Aspiration hazard	The mixture is not classified as a aspiration hazard because it doesn't contain an aspiration toxicant.

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation	TCLo inhalation
sodium hydroxide	Not established	Not established	Not established	Not established

Note: Representative toxicity data from by RTECS database of the Canadian Centre for Occupational Health and Safety (CCOHS)[1] data from supplier MSDS were also consulted.

Section 12: Ecological Information

The IMDG Code criteria and the raw-material MSDS along with supporting data for the classification of registered substances from the European Chemical Agency database (http://echa.europa.eu) were used.

Acute Ecotoxicity

Category 3

GHS Code: Hazard Statement

H402: Harmful to aquatic life

Chronic Ecotoxicity

Not data available

Biodegradability

Not data available

Other Effects

VOC (EPA, WHIMS, and Europe) = 0% (0 g/L)

**VOC = Regulated Volatile Organic Content*

Section 13: Disposal Information

P501: Dispose of contents in accordance with all local, regional, national, and international regulations.

Section 14: Transport Information

Ground

Refer to TDG regulations (Canadian Transportation of Dangerous Goods regulations);
USA CFR 49 Regulations (Parts 100 to 185).

All sizes less than 1 liter:
Limited Quantity

Air

Refer to IATA dangerous goods regulations.

UN number: UN1824; **Shipping Name:** SODIUM HYDROXIDE SOLUTION; **Class:** 8,
Packing Group: II, Marine Pollutant: No
Packing Instructions: Y840 (Max Net Qty: 0.5L), 851 (Max Net Qty: 1L).

NOTE: Recommend to avoid shipping by air.

Sea

Refer to IMDG regulations.

UN number: UN1824; **Shipping Name:** SODIUM HYDROXIDE SOLUTION; **Class:** 8,
Packing Group: II, Marine Pollutant: No

Note: Component supplier SDS transportation sections and labeling were consulted. All involved staff of shipper must be appropriately trained before involvement with the transport of this product, or work under direct supervision of a trained person.

Section 15: Regulatory Information

Canada

Domestic Substance List (DSL) / Non-Domestic Substance Lists (NDSL)

All hazardous ingredients are listed on the DSL/NDSL.

Industry and Science Canada

MG Labels products intended for the workplace to conform to WHMIS labeling regulations. Product identification, net quantity declaration, minimum printing type size heights, and packaging of this product are in compliance.

Health Canada

Products produced by MG Chemicals intended for retail display conform to the Canadian Consumer Labeling Regulations.

USA

CAA (Clean Air Act, USA)

This product does not contain any class 1 ozone depleting substances.

This product does not contain any class 2 ozone depleting substances.

This product does not contain substances that are listed as hazardous air pollutants.

EPCRA (Emergency Planning and Right to Know Act, USA, 40 CFR 372.45

This product contains any substances subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372.

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act

Sodium hydroxide has a CERCLA reporting quantity of 1000 lb.

TSCA (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

California Proposition 65 (Chemicals known to cause cancer or reproductive toxicity, Sept 2, 2011 revision, USA).

This product does not contain any of the listed substances.

Europe

RoHS

This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, or PBDE's, and complies with European RoHS regulations.

WEEE

This product is not a piece of electrical or electronics equipment, and is therefore not governed by this regulation.

Section 16: Other Information

MSDS Prepared by Michel Hachey

Date of Issue 30 January 2013

Supersedes 9 November 2010

Reason for Changes: Change to GHS format and formulation adjustment

Reference

1) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®)

2) ACGIH *2011 TLVs and BEIs: Based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices*, American Conference of Governmental of Industrial Hygienist Cincinnati, OH (2009).

Abbreviations

ACGIH American Conference of Governmental Industrial Hygienists
GHS: Globally Harmonized System of Classification of Labeling of Chemicals
LC50 Lethal Concentration 50%
LCLo Lowest published lethal concentration
LD50 Lethal Dose 50%
N/A Not Applicable
N/E Not Estimated
PEL Permissible Exposure Limit
STEL Short-Term Exposure Limit
TCLo Lowest published toxic concentration
TWA Time Weighted Average
VOC Volatile Organic Content

Technical Queries Contact us regarding any questions, improvement suggestions, or problems with this product. Application notes, instructions, and FAQs are located at www.mgchemicals.com.

Email: support@mgchemicals.com

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