

ETCH RESIST PEN

416-RP

Material Safety Data Sheet

NOTE: This MSDS is not required for this consumer product by the Canadian and US regulations, and it is provided as a courtesy rather than by an obligation. For the applicable exemption, please refer to the following: The Canadian Hazardous Product Act part 12, section f; The US Code of Federal regulation: 29 CFR 1910.1200(b)(3)(ix).

Section 1: Product and Company Identification

Product Name: Etch Resist Pen

MSDS Code: 416-RP

Related Part #: 416-RP

Use: marking, drawing or touching up etch resist or positive films and for marking printing circuit boards

Emergency Contact: CANUTECH ☎: 1-613-996-6666, Collect 24/7

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: support@mgchemicals.com **WEB** www.mgchemicals.com

Section 2: Hazards Identification

WHMIS Classification



B2 – Flammable Liquids; D2B – Toxic Material (Skin/Eye Irritation)

GHS Pictograms



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GHS Categories

Criteria	Category	Signal Word	Symbol
Flammable Liquid	2	Danger	Flame
Eye Irritation	2A	Warning	Exclamation
Specific Target Organ Toxicity Single Exposure	3	Warning	Health
Skin Irritation	3	Warning	—

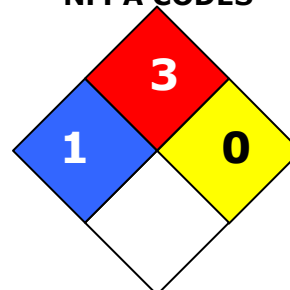
AP Non Toxic Seal

This product carries the AP Non Toxic Seal by The Art and Creative Material Institute, where AP stands for Approved Product. The AP Non Toxic Seal certifies that the quantities of toxic or injurious materials to humans are insufficient to cause acute or toxic health problems according to the ASTM D-4236 hazard-labeling standard. A medical expert carried out the required toxicological evaluation, subject to review by the Institute Toxicology Advisory Board. This is an approved product: the institute does not expect it to be toxic or lead to health problems.

HMIS RATING

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

NFPA 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

H225: Highly flammable liquid and vapor

Health Hazards

GHS Code: Hazard Statement

H319: Causes serious eye irritation

H315: May cause skin irritation

H336: May cause drowsiness and dizziness

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Eyes	Causes severe eye irritation if splashed in eyes or exposed to concentrated vapors. May also cause eye redness or pain.
Skin	May cause mild to moderate skin irritation.
Inhalation	May cause nose, throat and lung irritation.
Ingestion	<i>Not a likely route of exposure.</i> Harmful if swallowed. It is a central nervous system depressant.
Chronic	Not available

Section 3: Hazardous Ingredients

CAS #	Chemical Name	Wt%	ACGIH TWA	OSHA PEL	STEL
71-36-3	butanol	N/Av ^{a)}	20 ppm	100 ppm	N/E
71-23-8	propanol	N/Av ^{a)}	100 ppm	200 ppm	N/E
64-17-5	ethanol	N/Av ^{a)}	1000 ppm	1000 ppm	N/E
123-42-2	diacetone alcohol	N/Av ^{a)}	50 ppm	N/E	N/E

Note: Limits from by RTECS database of the Canadian Centre for Occupational Health and Safety (CCOHS). Data from suppliers' MSDS were also consulted.

a) Concentration ranges for ink formulation are withheld by supplier due to consumer product status.

ETCH RESIST PEN**416-RP****Section 4: First Aid Measures**

<i>Exposure Condition</i>	<i>GHS Code: Precautionary Statement</i>
IF IN EYES	P305
Symptoms	Immediate: <i>irritation, redness, pain, blurred vision</i>
Response	P351: Rinse cautiously with water for several minutes. P338: Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists	P313: Get medical attention.
IF INHALED	P304
Symptoms	Immediate: <i>dizziness, drowsiness, headaches, nausea, cough, blurred vision, fatigue</i>
Response	P340: Remove person to fresh air and keep comfortable for breathing.
If you feel unwell	P312: Call a POISON CENTRE/doctor.
IF ON SKIN	P302
Symptoms	Immediate: <i>irritation, redness;</i> Delayed: <i>rash or dry skin</i>
Response	P352: Wash with plenty of water.
If skin irritation occurs	P313: Get medical attention.
IF SWALLOWED	P301 (<i>Not a likely route of exposure under normal use</i>)
Symptoms	Immediate: <i>nausea, vomiting, abdominal cramps, irritation, or burning sensation, dizziness</i>
Response	P312: Call a POISON CENTRE or physician if you feel unwell.

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

ETCH RESIST PEN**416-RP****Section 5: Fire Fighting Measures**

Autoignition Temperature^{a)}	Not available	Flash Point	13 °C [55 °F] ^{a)}	LFL [LEL] UFL [UEL]^{b)}	Not available
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In case of fire	P370
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Response	P378: Use dry chemical, carbon dioxide, or chemical foam to extinguish.
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Combustion Products	Produces CO, CO ₂ , nitrous oxides, and smoke.
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General Information	Will burn if involved in a fire.
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Note: The GHS codes and the GHS precaution statements are used. The format is
GHS Codes: Statements.

a) Lower bound FP estimate is based on the closed cup value for the ethanol component.

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 mist/vapors.

Containment Not applicable

Cleaning Wipe with absorbent material Wash spill area with soap and water to remove the last traces of residue.

Disposal Not available

Section 7: Handling and Storage

Prevention P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P261: Avoid breathing vapors.

Handling P264: Wash thoroughly after handling.

RECOMMENDATION: Do not shake pen.

Storage P233 + P235: Keep Container tightly closed. Keep cool.

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

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Section 8: Exposure Controls/Personal Protection

Routes of Entry

Eyes, ingestion, inhalation, and skin

Engineering Controls

Ventilation

Keep airborne contaminant concentrations below exposure limits given in Section 3.

RECOMMENDATION: No ventilation control required under normal use conditions.

Personal Protective Equipment

Eye protection

Not required under normal use conditions.

Skin Protection

Not required under normal use conditions.

Respiratory Protection

Not needed under normal uses.

General Hygiene Considerations

Wash hands with water and soap after use.

Section 9: Physical and Chemical Properties

Physical State	Liquid	Odor	Alcohol, marker ink	Odor Threshold	Not available
Appearance	Black	Specific Gravity	Not available	Freezing Point	Not available
Boiling Point ^{a)}	>79 °C	Vapor Pressure @ 20 °C	Not available	Evaporation Rate	Fast
Autoignition Temperature	Not available	Flash Point ^{a)}	13 °C [55 °F]	Vapor Density	>2 (Air =1)
Lower Flammability Limit ^{c)}	Not available	Upper Flammability Limit ^{c)}	Not available	Decomposition Temp.	Not available
Viscosity	Not available	Partition Coefficient	Not available	Solubility in Water	soluble
pH	Not available				

a) Values for the boiling point and closed cup flash point are based on ethanol

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Section 10: Stability and Reactivity

Stabilities	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Ignition sources and incompatible substances
Incompatibilities	Strong oxidizing agents
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	Skin irritant.
Serious eye damage/irritation	Causes serious to moderate eye irritations.
Sensitization (effects of repeated exposure)	No known hazardous effect
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)	Not known
Reproductive Toxicity (risk to sex functions)	Not available
Teratogenicity (risk of fetus malformation)	Not available
STOT-single exposure	Inhalation may affect the central nervous system
STOT-repeated exposure	Not available
Aspiration hazard	Not classifiable as an aspiration hazard

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Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation	TCLo inhalation
1-propanol	2,200 mg/kg Rat	5,040 mg/kg Rabbit	48 g/m ³ Rat	N/E
1-butanol	790 mg/kg Rat ----- 100 mg/kg Mouse	3,400 mg/kg Rabbit	24 g/m ³ Rat	25 ppm Human
ethanol	7,060 mg/kg Rat ----- 3,450 mg/kg Mouse	N/E	20,000 ppm 10 h Rat ----- 39 g/m ³ 4 h Mouse	2,500 mg/m ³ 20 min Human ----- 50,000 mg/m ³ 2 h Mouse
diacetone alcohol	2,520 mg/kg Rat ----- 4,000 mg/kg Mouse	13,500 mg/kg Rabbit	N/E	100 ppm Human ----- 100 g/m ³ 20 M Rat

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

- a) Lowest published lethal dose
- b) Lowest published lethal concentration

ETCH RESIST PEN**416-RP****Section 12: Ecological Information****Acute Ecotoxicity**

Not classifiable

Chronic Ecotoxicity

Not classifiable

Biodegradability

Microbially biodegradable and photodegradable

Section 13: Disposal Information

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

Section 14: Transport Information**Ground**

Not regulated

Air

Not regulated

Sea

Not regulated

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Section 15: Regulatory Information

Canada

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

All hazardous ingredients are listed on the DSL/NDSL.

Health Canada

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

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.

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 contains any substance that is listed as a hazardous air pollutant.

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

This product does not contain substances which are subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372

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 contains toluene, which is listed as reproductively toxic.

This product contains carbon black (airborne, unbound particles of respirable size), which is listed as a carcinogen.

Europe

RoHS (Restriction of Hazardous Substance Directive)

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

WEEE (Waste Electrical and Electronic Equipment Directive)

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

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Section 16: Other Information

MSDS Prepared by Michel Hachey
Date of Preparation 19 April 2012
Reference All toxicological data were checked against the RTECS
(Registry of Toxic Effects of Chemical Substances®)

Abbreviations

LC50 Lethal Concentration 50%
LD50 Lethal Dose 50%
LCLo Lethal Concentration Low observed
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.

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