

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](mailto:support@mgchemicals.com) **WEB** [www.mgchemicals.com](http://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	—

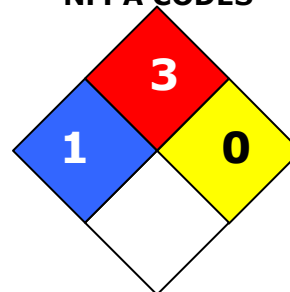
### AP Non Toxic Seal

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

<b>HEALTH:</b>	<b>1</b>
<b>FLAMMABILITY:</b>	<b>3</b>
<b>PHYSICAL HAZARD:</b>	<b>0</b>
<b>PERSONAL PROTECTION:</b>	

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

**Section 3: Hazardous Ingredients**

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

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**Section 4: First Aid Measures**

*Exposure Condition*

*GHS Code: Precautionary Statement*

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

<b>Autoignition Temperature<sup>a)</sup></b>	Not available	<b>Flash Point</b>	13 °C [55 °F] <sup>a)</sup>	<b>LFL [LEL] UFL [UEL]<sup>b)</sup></b>	Not available
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<b>In case of fire</b>	P370
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<b>Response</b>	P378: Use dry chemical, carbon dioxide, or chemical foam to extinguish.
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<b>Combustion Products</b>	Produces CO, CO <sub>2</sub> , nitrous oxides, and smoke.
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<b>General Information</b>	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

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

<b>Stabilities</b>	Chemically stable at normal temperatures and pressures
<b>Conditions to Avoid</b>	Ignition sources and incompatible substances
<b>Incompatibilities</b>	Strong oxidizing agents
<b>Polymerization</b>	Will not occur
<b>Decomposition</b>	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5

### Section 11: Toxicological Information

<b>Skin corrosion/irritation</b>	Skin irritant.
<b>Serious eye damage/irritation</b>	Causes serious to moderate eye irritations.
<b>Sensitization</b> (effects of repeated exposure)	No known hazardous effect
<b>Carcinogenicity</b> (risk of cancer)	Not classified or listed as a carcinogen by IARC, ACGIH, CA Prop 65, or NTP
<b>Mutagenicity</b> (risk of heritable genetic effects)	Not known
<b>Reproductive Toxicity</b> (risk to sex functions)	Not available
<b>Teratogenicity</b> (risk of fetus malformation)	Not available
<b>STOT-single exposure</b>	Inhalation may affect the central nervous system
<b>STOT-repeated exposure</b>	Not available
<b>Aspiration hazard</b>	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 <sup>3</sup> Rat	N/E
1-butanol	790 mg/kg Rat ----- 100 mg/kg Mouse	3,400 mg/kg Rabbit	24 g/m <sup>3</sup> 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 <sup>3</sup> 4 h Mouse	2,500 mg/m <sup>3</sup> 20 min Human ----- 50,000 mg/m <sup>3</sup> 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 <sup>3</sup> 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](http://www.mgchemicals.com).

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