

422B-P

(PEN)

Safety Data Sheet

Section 1: Product and Company Identification

Product Identifier and Other Means of Identification

Product Identifier: 422B-P**Other Means of Identification:** Silicone Modified Conformal Coating (Pen)**Related Part #** 422B-P

Recommended Use and Restriction on Use

Use: Conformal coating for printed circuit boards and electronic components**Uses Advised Against:** Not applicable

Details of Manufacturer or Importer

ManufacturerMG Chemicals
1210 Corporate Drive
Burlington, Ontario L7L 5R6
CANADAMG Chemicals (Head Office)
9347-193 Street
Surrey, British Columbia V4N 4E7
CANADA**☎** +1-800-340-0772**FAX** +1-800-340-0773**E-MAIL** support@mgchemicals.com**WEB** www.mgchemicals.com**☎** +1-905-331-1396**FAX** +1-905-331-2682**E-MAIL** info@mgchemicals.com**E-MAIL** (Competent Person): sds@mgchemicals.com

Emergency Phone Number



For hazardous material incidents ONLY (leaks, spills, fires, exposures or accidents)
USA or CANADA—Call Verisk 3E at **+1-866-519-4752** or **+1-760-476-3962**
(Service access code: 335388)**For emergencies involving the transport of dangerous goods;** 24/7 service
CANADA—Call CANUTEC collect at **+1-613-996-6666** or ***666** on cellular phones

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Section 2: Hazards Identification
Classification of Hazardous Chemical
GHS Categories

Criteria	Category	Signal Word	Pictograms
Flammable Liquid	2	Danger	Flame
Aspiration Hazard	1	Danger	Health
Specific Target Organ Toxicity Repeated Exposure	2	Warning	Health
Reproductive Toxicity	2	Warning	Health
Carcinogenicity	2	Warning	Health
Eye irritation	2	Warning	Exclamation
Skin irritation	2	Warning	Exclamation
Specific Target Organ Toxicity Single Exposure	3	Warning	Exclamation
Hazardous to the Aquatic Environment Acute	3	<i>none</i>	<i>none</i>


Note: The degree of severity is ranked within each hazard class from 1 (Highest Severity) to up to 5 (Lowest Severity), which is opposite to HMIS and NFPA conventions. Severity category rankings do not allow comparisons between classes.

Label Elements

Signal Word	DANGER
Pictograms	Hazard Statements
	H225: Highly flammable liquid and vapor
	H304: May be fatal if swallowed and enters airways H373: May cause damage to organs (inner ear, liver) through prolonged or repeated exposure H361: Suspected of damaging fertility or the unborn child H351: Suspected of causing cancer

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Pictograms	Hazard Statements
	H315: Causes skin irritation H319: Causes serious eye irritation H336: May cause drowsiness or dizziness
No Symbol Mandated	H412: Harmful to aquatic life with long lasting effects
Prevention	Precautionary Statements
P102	Keep out of reach of children.
P201, P202	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260, P271	Do not breathe vapors. Use only outdoors or in a well-ventilated area.
P264	Wash hands thoroughly after handling.
P280	Wear protective gloves.
P273	Avoid release to the environment.
Response	Precautionary Statements
P370 + P378	In case of fire: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish.
P308 + P313	IF exposed or concerned: Get medical advice or attention.
P301 + P310, P331	IF SWALLOWED: Immediately call a Poison Center or doctor. Do NOT induce vomiting.
P303 + P361 + P364 + P352	IF ON SKIN (or hair): Take off immediately all contaminated clothing and wash it before reuse. Wash with plenty of water.
P332 + P313	If skin irritation occurs: Get medical advice or attention.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTRE or doctor if you feel unwell.
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 attention.

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Storage	Precautionary Statements
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
Disposal	Precautionary Statements
P501	Dispose of contents in accordance to local, regional, international regulations.

Hazards Not Otherwise Classified

Other Criteria	Hazard Statements/Precautionary Statement	Signal Word	Pictograms
Defats skin	Repeated exposure may cause skin dryness or cracking.	None	None

Section 3: Composition/Information on Ingredients

CAS #	Chemical Name	%(weight)
67-64-1	acetone	41%
1330-20-7	xylene (mixed isomers)	10-30%
108-65-6	1-methoxy-2-propanol acetate	4%
100-41-4	ethylbenzene	1-5%
108-88-3	toluene	0.1-1%

Section 4: First Aid Measures

<i>Exposure Condition</i>	<i>GHS Code: Precautionary Statement</i>
IF ON SKIN (or hair)	P303 + P361 + P364, P352, P332 + P313, P308 + P313
Immediate Symptoms	<i>redness, irritation, dry skin</i>
Response	Take off immediately all contaminated clothing and wash it before reuse. Wash with plenty of water. If skin irritation occurs: Get medical advice or attention. IF exposed or concerned: Get medical advice or attention.

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IF INHALED	P304 + P340, P312, P308 + P313
Immediate Symptoms	<i>irritation of the respiratory track, cough, dizziness, drowsiness, headaches (in extreme exposure cases: nausea, unconsciousness)</i>
Response	Remove person to fresh air (out of the contaminated zone) and keep comfortable for breathing. If feeling unwell: Call a doctor. If exposed or concerned: Get medical advice or attention.
IF IN EYES	P305 + P351 + P338, P337 + P313
Immediate Symptoms	<i>redness, severe irritation, pain, blurred vision</i>
Response	Rinse cautiously with water for at least 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.
IF SWALLOWED	P301 + P310 + P331, P308 + P313
Immediate Symptoms	<i>abdominal pain, burning sensation, nausea, headaches, dizziness, drowsiness, vomiting</i>
Response	Immediately call a Poison Center or doctor. Do NOT induce vomiting. If exposed or concerned: Get medical advice or attention.

Section 5: Fire Fighting Measures

Extinguishing Media	Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish. Use water spray to cool containers.
Specific Hazards	The vapors are heavier than air and may accumulate in low-lying areas. Vapors may travel long distances and ignite at an ignition source, which can cause a flashback or an explosion.
Combustion Products	Produces carbon oxides (CO, CO ₂).
Fire-Fighter	Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

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Section 6: Accidental Release Measures

Personal Protection	See personal protection recommendations in Section 8.
Precautions for Response	Do not breathe vapors. Remove or keep away all sources of extreme heat or open flames.
Environmental Precautions	Avoid releasing to the environment. Prevent spill from entering drains and waterways.
Containment Methods	Not applicable
Cleaning Methods	Collect liquid in a sealable, solvent-resistant container. Sprinkle inert absorbent compound onto spill, then sweep into the container. Wash spill area with soap and water to remove the last traces of residue.
Disposal Methods	Dispose of spill waste according to Section 13.

Section 7: Handling and Storage

Prevention	Keep out of reach of children. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Do not breathe vapors. Use only outdoors or in a well-ventilated area. Avoid release to the environment.
Handling	Wash hands thoroughly after handling. Wear protective gloves. Take off immediately all contaminated clothing and wash it before reuse.
Storage	Store in a well-ventilated place. Keep cool. Store locked up.

Section 8: Exposure Controls/Personal Protection
Substances with Occupational Exposure Limit Values

Chemical Name	Country/ Provinces	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
acetone	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	500 ppm 1 000 ppm 500 ppm 250 ppm 500 ppm 750 ppm	750 ppm Not established 750 ppm 500 ppm 750 ppm 1 000 ppm
xylene (mixed isomers)	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	100 ppm 100 ppm 100 ppm 100 ppm 100 ppm	Not established 150 ppm 150 ppm 150 ppm 150 ppm
1-methoxy-2- propanol acetate	ACGIH U.S.A. OSHA PEL U.S.A. California ^{a)} Canada AB Canada BC Canada ON Canada QC	Not established Not established 100 ppm Not established 50 ppm 50 ppm Not established	Not established Not established 150 ppm Not established 75 ppm Not established Not established
ethylbenzene	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	100 ppm 100 ppm 150 ppm 20 ppm 100 ppm 100 ppm	Not established 125 ppm 200 ppm Not established 125 ppm 125 ppm
toluene	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	20 ppm 200 ppm 50 ppm 20 ppm 20 ppm 100 ppm	Not established 300 ppm Not established Not established Not established 150 ppm

Note: Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH¹, OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from by RTECS² database and 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) California Code of Regulations, Title 8, Section 5155. Airborne Contaminants. Can be absorbed through skin.

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Engineering Controls

Ventilation Keep airborne concentrations below the occupational exposure limits (OEL).

Personal Protective Equipment

Eye protection Wear appropriate protective eyeglasses or chemical safety goggles.

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

Skin Protection For likely contacts, use of protective butyl rubber, fluorinated rubber, or other chemically resistant gloves.

For incidental contacts, neoprene or other chemically resistant gloves.

Respiratory Protection For over-exposures up to 10 x OEL of mist/vapors/spray, wear respirator such as a half-mask respirator with organic vapor cartridges.

RECOMMENDATION: Consult your local safety supply store to ensure that your respirator has a NIOSH (U.S.) approved filter cartridges appropriate for the ingredients listed in Section 3. The respirator should be fitted to the employee by a professional. Ensure vapor cartridges are stored in sealed plastic bags when not being used.

General Hygiene Considerations

Wash hands thoroughly with water and soap after handling.

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Section 9: Physical and Chemical Properties

Physical State	Liquid	Lower Flammability Limit ^{b)}	1%
Appearance	Clear	Upper Flammability Limit ^{b)}	13%
Odor	Ethereal	Vapor Pressure @21 °C	Not available
Odor Threshold	Not available	Vapor Density	Not available
pH	Not available	Relative Density @25 °C	0.85
Freezing/Melting Point	Not available	Solubility in Water	Partially soluble
Initial Boiling Point ^{a)}	≥56 °C [≥133 °F]	Partition Coefficient n-octanol/water	Not available
Flash Point ^{a)}	-17 °C [1.4 °F]	Auto-ignition Temperature ^{c)}	≥432 °C [≥810 °F]
Evaporation Rate	Fast	Decomposition Temperature	Not available
Flammability	Highly Flammable	Viscosity @40 °C	<20.5 mm ² /s

a) Values for flash point and other threshold based on acetone

b) Calculated using Raoult's Law and Le Chatelier Principle

c) Values for based on the component with the lowest auto-ignition value

Section 10: Stability and Reactivity

Reactivity	Not available
Chemical Stability	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Ignition sources, excessive heat, and incompatible substances. Vapors may form explosive mixture with air.
Incompatibilities	Oxidizing agents, strong acids, strong bases
Polymerization	Will not occur
Decomposition	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5.

Section 11: Toxicological Information
Summary of Effects and Symptoms by Routs of Exposure

Eyes	May cause redness, serious eye irritation, or pain.
Skin	May cause redness, skin irritation, or dry skin.
Inhalation	May cause cough, irritation of the respiratory track, dizziness, drowsiness, headaches, <i>(in extreme exposure cases: unconsciousness and death)</i> .
Ingestion	May cause burning sensation, abdominal pain, nausea, vomiting (see also inhalation symptoms).
Chronic	Prolonged or repeated exposure may cause skin dryness and cracking, defat skin, and local redness and discomfort.

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation
acetone	5 800 mg/kg Rat	>9 400 µL/kg Guinea pig	44 g/m ³ 4 h Rat
xylene	4 350 mg/kg Rat	>1 700 mg/kg Rabbit	5 000 ppm 4 h Rat
1-methoxy-2-propanol acetate	8 532 mg/kg Rat	>5 g/kg Rabbit	Not available
ethylbenzene	3 500 mg/kg Rat	>5 000 mg/kg Rabbit	35 500 mg/m ³ 2 h Mouse
toluene	636 mg/kg Rat	12 124 mg/kg Rabbit	49 g/m ³ 4 h Rat

Note: Toxicity data from the RTECS² and ECHA databases were consulted. The data from supplier SDS were also consulted.

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Other Toxicological Effects**Skin corrosion/irritation**

Causes skin irritation based on Draize tests on animals.

Serious eye damage/irritation

Causes severe eye irritation based on Draize tests on animals.

Sensitization
(allergic reactions)

Based on available data, the classification criteria are not met.

Carcinogenicity
(risk of cancer)**Ethylbenzene [CAS# 64-17-5]**

IARC Group 2B: Possibly carcinogenic to humans

ACGIH A3: Confirmed animal carcinogen with unknown relevance to humans

CA Prop 65: Listed as a carcinogen

NTP: Not listed

Mutagenicity
(risk of heritable genetic effects)

Based on available data, the classification criteria are not met.

Reproductive Toxicity
(risk to sex functions)

At high doses, spermatogenesis was observed in male rat by inhalation of toluene.

Teratogenicity
(risk of fetus malformation)

Fetotoxicity is observed in animal studies for inhalation and oral exposures for toluene.

STOT-single exposure

Acetone, xylene, 1-methoxy-2-propanol acetate, and toluene can affect the central nervous system by inhalation causing drowsiness or dizziness.

STOT-repeated exposure

Contains toluene, which is a Cat 2 STOT repeated exposure hazard for the central nervous system and cochlear systems.

Toluene and xylenes are ototoxic chemicals according to rat studies: inhalation exposure in the presence of noise may lead to cochlear impairment.

Aspiration hazard

The liquid content is classified as Cat 1 aspiration hazards. The mixture containing more than 10% Class 1 aspiration toxicant and having a viscosity <20.5 mm²/s.

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Section 12: Ecological Information

Ecological classifications are based on the IMDG/GHS criteria in conjunction with ecotoxicological data from our suppliers, the European Chemical Agency database (<http://echa.europa.eu>), and other reliable sources.

Acetone and 1-methoxy-2-propanol acetate have low fish ecotoxicity between 100 and 1000 mg/L for fish.

Xylene isomers mixture are expected to be acute category 2 environmental toxicant with minimal LC50 of 2.5 mg/L for fish.

Ethylbenzene is an acute category 2 environmental toxicant with minimal LC50 of 4.2 mg/L for *Oncorhynchus mykiss* (rainbow trout); 2.9 mg/L 48 h *Daphnia magna* (water flea).

Toluene is an acute category 2 environmental toxicant with minimal LC50 96 h of 7.63 mg/L for *Oncorhynchus mykiss* (rainbow trout); EC50 24 h of 8.9 mg/L *Daphnia magna* (water flea); EC50 24 h of 10 mg/L *Pseudokirchneriella subcapitata* (green algae).

Acute Ecotoxicity

Category 3

Harmful to aquatic life.

Avoid release to the environment.

Chronic Ecotoxicity

Based on available data, the classification criteria are not met.

Biodegradability

Not data available

Other Effects

Regulated Volatile Organic Content (VOC) = 32% (289 g/L)

Section 13: Disposal Information

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

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Section 14: Transport Information

Ground

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

Sizes 30 mL and under
Excepted Quantity
 Code **E2**



Air

Refer to ICAO-IATA Dangerous Goods Regulations.

Sizes 30 mL and under

Excepted Quantity
 Code **E2**

On air waybill, write:
 "Dangerous Goods in
 Excepted Quantities".



FOR REFERENCE ONLY
UN number: UN1263
Shipping Name: PAINT
Class: 3
Packing Group: II
Marine Pollutant: No

Sea

Refer to IMDG regulations.

Sizes 30 mL and under

Excepted Quantity
 Code **E2**

In transport document,
 write:
 "Dangerous Goods in
 Excepted Quantities".



FOR REFERENCE ONLY
UN number: UN1263
Shipping Name: PAINT
Class: 3
Packing Group: II
Marine Pollutant: No

Note: Shipper must be appropriately trained and certified before involvement with the transport of dangerous goods.

Section 15: Regulatory Information
Canada
Domestic Substance List (DSL) / Non-Domestic Substance Lists (NDSL)

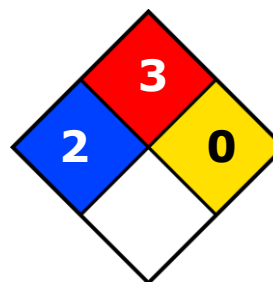
All hazardous ingredients are listed on the DSL/NDSL.

Hazardous Products Act (R.S.C., 1985, c. H-3)

The safety data sheet and label comply with the Hazardous Product Act and WHMIS 2015.

USA
Other Classifications
HMIS® RATING

HEALTH:	* 2
FLAMMABILITY:	3
PHYSICAL HAZARD:	0
PERSONAL PROTECTION:	

NFPA® 704 CODES


Approximate HMIS and NFPA Risk Ratings Legend:

0 (Low or none); 1 (Slight); 2 (Moderate); 3 (Serious); 4 (Severe)

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 xylene, ethylbenzene and toluene that are listed as hazardous air pollutants.

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

This product contains acetone (CAS# 78-93-3, reportable quantity = 5 000 lb), which can be subject to the CERCLA reporting requirements.

This product contains ethylbenzene (CAS# 100-41-4; reportable quantity = 1 000 lb) and xylene (CAS# 1330-20-7, reportable quantity = 100 lb), which are subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372.

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This product contains toluene (CAS# 108-88-3; reportable quantity = 1 000 lb), which is 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, USA).

This product contains ethylbenzene (CAS# 100-41-4), which is listed as a carcinogen.

This product contains toluene, which is listed as reproductively toxic.

Europe**RoHS** (Restriction of Hazardous Substances Directive)

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

WEEE (Waste Electrical and Electronic Equipment Directive)

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

Section 16: Other Information

Prepared by the	Regulatory Affairs Department
Date of Revision	27 February 2020
Supersedes	11 June 2019
Reason for Changes:	Update to the emergency contact information.

Reference

- 1) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®)
- 2) ACGIH 2017 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 (2017).

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Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists (USA)
ECHA	European Chemicals Agency
EU	European Union
EC50	Half maximal effective concentration
EL50	Half maximal effective loading
IARC	International Agency for Research on Cancer
NOELR	No observable effect loading ratio
NTP	National Toxicology Program
GHS	Globally Harmonized System of Classification of Labeling of Chemicals
LC50	Lethal Concentration 50%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
OEL	Occupational Exposure Limit
PEL	Permissible Exposure Limit
SDS	Safety Data Sheet
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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Disclaimer

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