

SAI Global File #004008

Burlington, Ontario, Canada

4223D

PREMIUM POLYURETHANE CONFORMAL COATING

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Identifier: 4223D

Other Means of Identification: Premium Polyurethane Conformal Coating

Related Part # 4223D-1L, 4223D-4L, 4223D-20L

Recommended Use and Restriction on Use

Use: Protective dielectric coating for printed circuit boards

Uses Advised Against: Not available

Details of Manufacturer or Importer

Manufacturer

MG Chemicals 1210 Corporate Drive Burlington, Ontario L7L 5R6 CANADA

+1-800-340-0772 FAX +1-800-340-0773 E-MAIL support@mqchemicals.com www.mgchemicals.com **W**EB

MG Chemicals (Head Office)

9347-193 Street

Surrey, British Columbia V4N 4E7

CANADA

+1-905-331-1396 +1-905-331-2682 FAX E-MAIL info@mgchemicals.com

E-MAIL (Competent Person): sds@mqchemicals.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: Hazard(s) 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
Carcinogenicity		2	Warning	Health
Eye Irritation		2	Warning	Exclamation
Skin Irritation		2	Warning	Exclamation
Specific Target Organ Toxicity	Single Exposure	3	Warning	Exclamation
Acute Toxicity	Dermal a)	4	Warning	Exclamation
Acute Toxicity	Inhalation a)	4	Warning	Exclamation
Hazardous to the Aquatic Environment	Chronic	3	None	None

Note: The degree of severity is ranked within each hazard class from 1 (Highest Severity) to up to 5 (Lowest Severity). Severity categories rankings do not allow comparisons between classes.

Label Elements

Signal Word	DANGER
Pictograms	Hazard Statements
	H225: Highly flammable liquid and vapor
<u> </u>	H351: Suspected of causing cancer
	H373: May cause damage to liver, kidney, and inner ears through prolonged or repeated exposure

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a) CLP Annex VI mandated classifications



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Pictograms	Hazard Statements
^	H319: Causes serious eye irritation
	H315: Causes skin irritation
•	H335: May cause respiratory irritation
	H312 + H332: Harmful in contact with skin or if inhaled
No Symbol Mandated	H412: Harmful to aquatic life with long lasting effects
Prevention	Precautionary Statements
P201	Obtain special instructions before use.
P202	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	Do not breathe mist, vapors, spray, fumes.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical, ventilating, lighting equipment.
P243	Take action to prevent static discharges.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves, eye protection, face protection.
P264	Wash hands thoroughly after handling.
P273	Avoid release to the environment.
Response	Precautionary Statements
P370 + P378	In case of fire: Use dry chemical, carbon dioxide, water fog, or chemical foam to extinguish.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P331	Do NOT induce vomiting.
P303 + P361 + P352	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Wash with plenty of water [or shower].
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P363	Wash contaminated clothing before reuse.

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Response	Precautionary Statements
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312	Call a POISON CENTER/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 advice/attention.
Storage	Precautionary Statements
P403 + P235	Store in well-ventilated place. Keep cool.
P405	Store locked up.
Disposal	Precautionary Statements
P501	Dispose of contents/container in accordance to local, regional, international regulations.

Hazards Not Othe	rwise 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)
1330-20-7	xylene (mixed isomers)	30-60%
78-93-3	2-butanone ^{a)}	10%
100-41-4	ethylbenzene	5-10%

a) Also known as methyl ethyl ketone



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Section 4: First-Aid Mea	asures
Exposure Condition	GHS Code: Precautionary Statement
IF SWALLOWED	P301 + P310, P331
Immediate Symptoms	burning sensation, abdominal pain, nausea, and headaches (see also inhalation symptoms).
Response	Immediately call a POISON CENTRE/doctor.
	Do NOT induce vomiting.
IF ON SKIN (or hair)	P303 + P361 + P352, P332 + P313, P308 + P313, P363
Immediate Symptoms	redness, irritation, dry skin
Response	Take off immediately all contaminated clothing. Wash with plenty of water or shower.
	If skin irritation occurs: Get medical advice or attention.
	IF exposed or concerned: Get medical advice or attention.
	Wash contaminated clothing before reuse.
IF INHALED	P304 + P340, P312
Immediate Symptoms	irritation of the respiratory track, cough, dizziness, drowsiness, headaches, (in extreme exposure cases: unconsciousness and death)
Response	Remove person to fresh air and keep comfortable for breathing.
	Call a POISON CENTER or doctor if you feel unwell.
IF IN EYES	P305 + P351 + P338, P337 + P313
Immediate Symptoms	redness, severe irritation, pain
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

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Section 5: Fire-Fighting Measures

Extinguishing Media In case of fire: 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, CO₂).

Fire-Fighter Wear self-contained breathing apparatus and full fire-fighting

turn-out gear.

Section 6: Accidental Release Measures

Personal Protection See personal protection recommendations in Section 8.

Precautions for

Response

Remove or keep away all sources of extreme heat or open

flames. Do not breathe mist, vapors, spray.

Environmental

Precautions

Avoid releasing to the environment. Prevent spill from entering

drains and waterways.

Containment Contain with inert absorbent (such as soil, sand, vermiculite).

Cleaning Collect the liquid in a sealable, solvent-resistant container with

an electrically protected vacuum cleaner, chemical absorbent, or

chemical spill pad.

RECOMMENDATION: Use a grounded stainless steel or carbon steel

container.

Disposal Dispose of spill waste according to Section 13.

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Section 7: Handling and Storage

Prevention 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.

Ground and bond container and receiving equipment. Use explosion-proof electrical, ventilating, lighting equipment. Take

precautionary measures against static discharge.

Do not breathe mist, vapors, spray, fumes. Use only outdoors or in well-ventilated area. In cases of inadequate ventilation wear

respiratory protection.

Avoid release to the environment.

Handling Wear protective gloves, eye protection, face protection.

Wash hands thoroughly after handling.

Storage Keep container tightly closed.

Store in a well-ventilated area. 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)
xylene	ACGIH	100 ppm	150 ppm
(mixed isomers)	U.S.A. OSHA PEL	100 ppm	Not established
	Canada AB	100 ppm	150 ppm
	Canada BC	100 ppm	150 ppm
	Canada ON	100 ppm	150 ppm
	Canada QC	100 ppm	150 ppm
2-butanone	ACGIH	200 ppm	300 ppm
(methyl ethyl ketone)	U.S.A. OSHA PEL	200 ppm	Not established
	Canada AB	200 ppm	300 ppm
	Canada BC	50 ppm	100 ppm
	Canada ON	200 ppm	300 ppm
	Canada QC	50 ppm	100 ppm

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Chemical Name	Country/ Provinces	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
ethylbenzene	ACGIH	20 ppm	Not established
	U.S.A. OSHA PEL	100 ppm	Not established
	Canada AB	100 ppm	125 ppm
	Canada BC	20 ppm (2B)	Not established
	Canada ON	100 ppm	125 ppm
	Canada QC	100 ppm	125 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 the RTECS² database and 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.

(2B) Carcinogen

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 incidental contacts, use disposable nitrile, 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 and particulate filter.

Above 10 x OEL, use a positive-pressure, air-supplied respirator

or a self-contained breathing apparatus.

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	1.6%
Appearance	Clear	Upper Flammability Limit	10.3%
Odor	Aromatic	Vapor Pressure @20°C	Not available
Odor Threshold	Not available	Vapor Density	>3.1 (Air = 1)
pH	Not available	Relative Density @25°C	0.96
Freezing/Melting Point	Not available	Solubility in Water	Insoluble
Initial Boiling Point	80 °C [176 °F]	Partition Coefficient n-octanol/water	Not available
Flash Point a)	-9 °C [16 °F]	Auto-ignition Temperature	430 °C [806 °F]
Evaporation Rate ^{b)}	0.86	Decomposition Temperature	Not available
Flammability (solid, gas)	Not applicable	Viscosity @40 °C	>20.5 mm ² /s

- a) Tag closed cup based on 2-butanone component
- b) Evaporation rate is based off of xylene component

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	strong 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.



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Section 11: Toxicological Information

Summary of Effects and Symptoms by Routes of Exposure

Ingestion May cause a burning sensation, abdominal pain, nausea,

vomiting (See also inhalation symptoms).

Skin Causes skin redness, skin irritation, and dry skin.

Inhalation May cause irritation of the respiratory track, cough, dizziness,

drowsiness, and headaches (in extreme overexposure cases:

unconsciousness and death).

Eyes Causes redness, severe irritation, and pain.

Chronic Prolonged or repeated exposure may cause skin dryness and

cracking, defat skin, and local redness and discomfort.

Prolonged and repeated exposure is possibly carcinogenic

based on inhalation studies on rats.

Prolonged or repeated overexposure may damage the liver

and kidneys.

Long term exposure to loud noises and product vapors may

lead to some hearing loss.

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50	
			inhalation	
xylene	4 350 mg/kg	>5 000 mg/kg	5 000 ppm	
	Rat	Rabbit	4 h Rat	
2-butanone	2 737 mg/kg	6 480 mg/kg	23 500 mg/m3	
	Rat	Rabbit	8 h Rat	
ethylbenzene	3 500 mg/kg	>5 000 mg/kg	35 500 mg/m3	
	Rat	Rabbit	2 h Mouse	

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

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Xylene and 2-butanone cause severe eye irritation.

Other Toxicological Effects

Skin corrosion/irritation Xylene causes skin irritation.

Serious eye

damage/irritation

Based on available data, the classification criteria are not

ACGIH A3: Confirmed animal carcinogen with unknown

met.

(allergic reactions)

Sensitization

Carcinogenicity (risk of cancer)

IARC Group 2B: Possibly carcinogenic to humans

Trice Group 251 1 ossibly carellingerie to namans

relevance to humans

Ethylbenzene [100-41-4]

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)

Based on available data, the classification criteria are not

met.

Teratogenicity

(risk of fetus malformation)

Based on available data, the classification criteria are not

met.

STOT-single exposure

Xylene isomers and 2-butanone can affect the central nervous system by inhalation causing drowsiness or dizziness. They are a respiratory system irritant.

STOT-repeated exposure

Prolonged or repeated over-exposure to p-xylene and ethylbenzene, in the presence of loud noise can lead to hearing loss (cochlear impairment) according to rat

inhalation studies.

Prolonged or repeated over-exposure to xylenes can damage the liver, kidneys, and central nervous system.

At high levels of exposures, ethylbenzene causes damage

of the liver.

Aspiration hazard

Although it contains more than 10% components of category 1 for aspiration hazard, the mixture has a kinematic viscosity of $>20.5 \text{ mm}^2/\text{s}$ at 40 °C for the

separation layer.

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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.

Xylene isomers mixture is acutely toxic to the aquatic environment of category 2 with a minimal LC50 96 h of 2.5 mg/L for Oncorhynchus mykiss (rainbow trout).

The butan-2-one has minimal LC50 96 h of 3 130 mg/L for Pimephales promelas (fathead minnow); EC50 48 h 520 mg/L Daphnia magna (water flea).

Ethylbenzene is an acute category 2 environmental toxicant with minimal LC50 96 h of 4.2 mg/L for Oncorhynchus mykiss (rainbow trout); EC50 48 h of 2.9 mg/L and 7d NOEL of 0.91 mg/L Daphnia magna (water flea).

Acute Ecotoxicity

See chronic ecotoxicity

Chronic Ecotoxicity

Category 3

Harmful to aquatic life with long lasting effects.

Avoid release to the environment.

Biodegradability

Not available

Other Effects

VOC (EPA, WHIMS, and Europe) = 57% (551 g/L)

*VOC = Regulated Volatile Organic Content

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 5 L and under 4223D-1L, 4223D-4L Limited Quantity



Sizes greater than 5 L 4223D-20L

UN number: UN1263 **Shipping Name**: PAINT

Class: 3

Packing Group: II Marine Pollutant: No



Air

Refer to ICAO-IATA Dangerous Goods Regulations.

Sizes up to 60 L (passenger), 120 L (cargo)

4223D-1L, 4223D-4L, 4223D-20L

UN number: UN1263 Shipping Name: PAINT

Class: 3

Packing Group: II Marine Pollutant: No



Sea

P001

Refer to IMDG regulations.

Sizes 5 L and under 4223D-1L, 4223D-4L Limited Quantity

Packing instructions



Sizes greater than 5 L 4223D-20L

UN number: UN1263 Shipping Name: PAINT

Class: 3

Packing Group: II Marine Pollutant: No



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

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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.

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

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

This product contains ethylbenzene (CAS # 100-41-4; reportable quantity = 1 000 lb), xylene (CAS# 1330-20-7, reportable quantity = 100 lb), butan-2-one (CAS# 78-93-3, reportable quantity = 5 000 lb), 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.

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California Proposition 65 (Chemicals known to cause cancer or reproductive toxicity)

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

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 electronics equipment and is therefore not governed by this regulation.

Section 16: Other Information

SDS Prepared by MG Chemical's Regulatory Department

Date 05 March 2020 Supersedes 09 January 2017

Reason for Changes: Change to classification and format changes.

References

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

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists (USA)
GHS	Globally Harmonized System of Classification of Labeling of Chemicals
LC50	Lethal Concentration 50%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
PEL	Permissible Exposure Limit
STEL	Short-Term Exposure Limit

TCLo Lowest published toxic concentration

TWA Time Weighted Average VOC Volatile Organic Content

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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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V4N 4E7

L7L 5R6

Disclaimer

This safety data sheet is provided as an information resource only. M.G. Chemicals, Ltd. believes the information contained herein is accurate and compiled from reliable sources. It is the responsibility of the user to guery and verify any information seeming suspect where doubt on the validity may exist. The buyer assumes all responsibility of using and handling the product in accordance with local, regional,

national, and international regulations.