SAI Global File #004008 Burlington, Ontario, Canada

4223

URETHANE CONFORMAL COATING

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Name: 4223

Other Means of Identification: Urethane Conformal Coating Related Part # 4223-55ML, 4223-1L, 4223-4L, 4223-20L

Recommended Use and Restriction on Use

Use: Protective conformal 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 MG 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

www.mgchemicals.com

a +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 CHEMTREC at +1-800-424-9300

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
Specific target organ toxicity	Repeated exposure	2	Warning	Health
Carcinogenicity		2	Warning	Health
Flammable liquid		3	Warning	Flame
Sensitization	Skin	1	Warning	Exclamation
Skin Irritation		2	Warning	Exclamation
Eye irritation		2A	Warning	Exclamation
Specific target organ toxicity	Single exposure	3	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	WARNING
Pictograms	Hazard Statements
	H226: Flammable liquid and vapor
	H351: Suspected of causing cancer
	H373: May cause damage to inner ear through prolonged or repeated exposure
	H319: Causes serious eye irritation
	H315: Causes skin irritation
•	H317: May cause an allergic skin reaction
V	H336: May cause dizziness or drowsiness

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Pictograms	Hazard Statements	
No Symbol Mandated	H412: Harmful to aquatic life with long lasting effects	
Prevention	Precautionary Statements	
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.	
P233	Keep container tightly closed.	
P241, P243	Use explosion-proof electrical, ventilating, lighting equipment. Take precautionary measures against static discharge.	
P240	Ground and bond container and receiving equipment.	
P260, P271	Do not breathe mist, vapors, spray. Use only outdoors or in well-ventilated area.	
P264	Wash hands thoroughly after handling.	
P280	Wear protective gloves, protective clothing, eye protection, face protection.	
P272	Contaminated work clothing should not be allowed out of the workplace.	
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.	
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 or attention.	
P303 + P361 + P364, P352, P312	IF ON SKIN (or hair): Take off immediately all contaminated clothing and wash it before reuse. Wash with plenty of water or shower. Call a POISON CENTER or doctor if you feel unwell.	
P333 + P313	If skin irritation or rash 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.	

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Storage	Precautionary Statements	
P403 + P235	Store in well-ventilated place. Keep cool.	
P405	Store locked up.	
Disposal	Precautionary Statements	

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)
1330-20-7	xylene (mixed isomers)	40-50%
100-41-4	ethylbenzene	10-12%
96-29-7	2-butanone oxamine ^{a)}	0.1-1%
4342-36-3	tributylstannyl benzoate	0.5%

a) Also known as MEKO

Section 4: First-Aid Measures

Exposure Condition	GHS Code: Precautionary Statement	
IF IN EYES	P305 + P351 + P338, P337 + P313	
Immediate Symptoms	irritation, redness, pain	
Response	Rinse cautiously with water for 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.	

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IF ON SKIN (or hair)	P303 + P361 + P364, P352, P333 + P313	
Immediate Symptoms	irritation, dry skin, redness	
Response	IF ON SKIN (or hair): Take off immediately all contaminated clothing and wash it before reuse. Wash with plenty of water or shower.	
	If you feel unwell: Call a POISON CENTER or doctor.	
	If skin irritation or rash occurs: Get medical advice or attention.	
IF INHALED	P304 + P340, P312, P308 + P313	
Immediate Symptoms	cough, irritation of the respiratory track, dizziness, drowsiness, headaches, (in extreme exposure cases: unconsciousness)	
Response	Remove person to fresh air (out of the contaminated zone) and keep comfortable for breathing.	
	If feeling unwell: Call a POISON CENTER or doctor.	
	If exposed or concerned: Get medical advice or attention.	
IF SWALLOWED	P301 + P310, P330, P331	
Immediate Symptoms	abdominal pain, burning sensation, nausea, headaches, dizziness, drowsiness, vomiting	
Response	Rinse mouth. Do NOT induce vomiting.	
	If material or vomit is aspirated into lungs: Immediately call a POISON CENTER or doctor.	

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, CO $_2$), nitrogen oxides (NOx), smoke.
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

Remove or keep away all sources of extreme heat or open

Response

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).

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

Cleaning

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.

Use explosion-proof electrical, ventilating, lighting equipment.

Take precautionary measures against static discharge.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not spray on an open

flame or other ignition source.

Do not breathe vapors, mist, spray. Use only outdoors or in a

well-ventilated area.

Avoid release to the environment.

Handling Wear protective gloves, protective clothing, eye protection, face

protection.

Ground and bond container and receiving equipment.

Wash hands thoroughly after handling.

Storage Keep container tightly closed.

Store in a well-ventilated area. Keep cool.

Store locked up.

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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
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.

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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.

Section 9: Physical and Chemical Properties

Physical State	Liquid	Lower Flammability Limit	1%
Appearance	Clear Amber	Upper Flammability Limit	7%
Odor	Aromatic	Vapor Pressure @20 °C	2.2 kPa [16 mmHg] ^{b)}
Odor Threshold	≥0.324 ppm	Vapor Density	3.66 (Air = 1)
pH	Not available	Relative Density @25 °C	0.94
Freezing/Melting Point	-47 °C [-53 °F]	Solubility in Water	Negligible
Initial Boiling Point	137 °C [279 °F]	Partition Coefficient n-octanol/water	3.16
Flash Point a)	27 °C [81 °F]	Auto-ignition Temperature	Not available
Evaporation Rate	0.86 (ButAc = 1)	Decomposition Temperature	Not available
Flammability (solid, gas)	Not applicable	Viscosity @40 °C	>20.5 mm ² /s

a) Based on Tag closed cup value for xylene mixture

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b) Estimated based on Raoult's Law and solvent components



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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.

Section 11: Toxicological Information

Summary of Effects and Symptoms by Routes of Exposure

EyesCauses serious irritation, redness, and pain. **Skin**Causes skin redness, irritation, and dry skin.

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

drowsiness, headaches. (in extreme exposure cases:

unconsciousness and death).

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

vomiting. (See also inhalation symptoms.)

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.

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Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50	LD50	LC50
	oral	dermal	inhalation
xylene	4 350 mg/kg	>5 000 mg/kg	5 000 ppm
	Rat	Rabbit	4 h Rat
ethylbenzene	3 500 mg/kg	>5 000 mg/kg	35 500 mg/m ³
	Rat	Rabbit	2h Mouse
2-butanone oxamine	930 mg/kg	200 μL/kg	Not
	Rat	Rabbit	available

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

Other Toxicological Effects

Skin corrosion	/irritation	Causes skin	irritation.

Serious eye damage/irritation Causes severe eye irritation.

Ethylbenzene [100-41-4]

Sensitization (allergic reactions) 2-butanone oxamine may cause allergic skin reactions.

Carcinogenicity (risk of cancer)

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

2-butanone oxamine [96-29-7]

Limited animal evidence of carcinogenic effects are

suggested in the literature.

Not classified or listed as a carcinogen by IARC, ACGIH,

CA Prop 65, or NTP.

Mutagenicity

Based on available data, the classification criteria are (risk of heritable genetic effects)

not met.

Reproductive Toxicity (risk to

sex functions)

Based on available data, the classification criteria are

not met.

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Teratogenicity

(risk of fetus malformation)

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

STOT-single exposure

Xylene isomers 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 and 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

Based on available data, the classification criteria are not met. Although it contains more than 10% components of category 1 for aspiration hazard, the mixture has a kinematic viscosity

of >20.5 mm²/s at 40 °C for the separation layer.

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).

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).

The 2-butanone oxamine component is not expected to be environmentally toxic with a minimal LC50 of 843 mg/L 96 h Pimephales promelas (fathead minnow); EC50 >500 mg/L 48 h Daphnia magna (water flea).

Acute Ecotoxicity

Available toxicity data does not meet classification thresholds.

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Chronic Ecotoxicity

Category 3

Harmful to aquatic life with long lasting effects.

Avoid release to the environment.

Biodegradability

Readily biodegradable. Product is volatile and only slightly soluble in water. In water and soil, it is biodegradable under both aerobic and anaerobic condition. Photooxidation in the atmosphere are typically in the range of 0.5 to 1.5 days.

Other Effects

VOC (EPA, WHIMS, and Europe) = 57% (537 g/L)

*VOC = Regulated Volatile Organic Compound

Section 13: Disposal Information

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 DOT 49 CFR** (Parts 100 to 185) **Regulations.**

Sizes 5 L and under Limited Quantity



Sizes greater than 5 L UN number: UN1307 Shipping Name: XYLENES

Class: 3

Packing Group: III Marine Pollutant: No



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Air

Refer to ICAO-IATA Dangerous Goods Regulations.

Sizes 5 L and under Limited Quantity Total net quantity per package 10 L



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

UN number: UN1307 Shipping Name: XYLENES

Class: 3

Packing Group: III Marine Pollutant: No



Sea

P001

Refer to IMDG regulations.

Sizes 5 L and under Limited Quantity

Packing instructions



Sizes greater than 5 L UN number: UN1307 Shipping Name: XYLENES

Class: 3

Packing Group: III Marine Pollutant: No



Note: Shipper must be appropriately <u>trained and certified</u> 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.

Export Control List (CEPA 1999, Schedule 3)

This product contains Tributylstannyl benzoate (CAS No. 4342-36-3) at a concentration of 0.5%, which are subject to the terms of Annex III of the Rotterdam convention.



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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) 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.

TSCA (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

California Proposition 65 (Chemicals known to cause cancer or reproductive toxicity, June 06, 2014 revision, USA).

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.

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Section 16: Other Information

SDS Prepared by Regulatory Department

Date 14 January 2019 Supersedes 07 March 2017

Reason for Changes: Modification to section 15 to add Export Control List chemical

ingredient.

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
LCEO	Lothal Concentration FOO/

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

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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1210 Corporate Drive 9347–193rd Street

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L7L 5R6 V4N 4E7

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Disclaimer

This material 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 query 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.