Safety Data Sheet

according to WHMIS 2023 and HCS 2024

Date of issue 12/08/2025 Version number 7.02 Revision: 12/08/2025

1 Identification

· **Product identifier**

· **Trade name: 8329TCS-A**

· **Other Means of Identification:** Thermally Conductive Epoxy Adhesive (Part A)

· **Related Part Number:** 8329TCS-Part A, 8329TCS-6ML, 8329TCS-50ML, 8329TCS-200ML

· **Application of the substance / the mixture** Thermally conductive adhesive resin

· **Uses advised against** Not available

· **Details of the supplier of the safety data sheet**

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Manufacturer/Supplier:
MG Chemicals (Head Office)
1210 Corporate Drive
Burlington, Ontario L7L 5R6
CANADA
+(1) 800-340-0772
+(1) 905-331-1396
info@mgchemicals.com

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Distributor:
Masline
511 Clinton Ave S
Rochester, New York 14620
United States
+(1) 586-546-5373

· **Information department:** sds@mgchemicals.com

· **Emergency telephone number:**

For hazardous material incidents ONLY (leaks, spills, fires, exposures or accidents)
USA or CANADA-Call 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

* 2 Hazard identification

· **Classification of the substance or mixture**

Skin Irritation - Category 2	H315 Causes skin irritation.
Eye damage/irritation – Category 2A	H319 Causes serious eye irritation.
Sensitization - skin – Category 1	H317 May cause an allergic skin reaction.
Carcinogenicity – Category 2	H351 Suspected of causing cancer. Route of exposure: Inhalation.
Aquatic Acute 1	H400 Very toxic to aquatic life.
Aquatic Chronic 1	H410 Very toxic to aquatic life with long lasting effects.

· **Label elements**

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

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· **Hazard pictograms**

GHS07 GHS08 GHS09

· **Signal word** Warning

· **Hazard-determining components of labeling:**
phenol, polymer with formaldehyde, glycidyl ether
1,3-bis(2,3-epoxypropoxy)-2,2-dimethylpropane
reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700)

· **Hazard statements**
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer. Route of exposure: Inhalation.
H410 Very toxic to aquatic life with long lasting effects.

· **Precautionary statements**

P102	Keep out of reach of children.
P280	Wear protective gloves, protective clothing, and eye protection.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333+P313	If skin irritation or rash occurs: Get medical advice.
P337+P313	If eye irritation persists: Get medical advice.
P405	Store locked up.
P501	Dispose of contents and container in accordance with local, regional, and national regulations.

· **Other hazards**
When exposed to extreme heat, this product may produce harmful zinc oxide and aluminum oxide fumes.

3 Composition/Information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
1314-13-2	zinc oxide	34.0% w/w
1344-28-1	aluminium oxide	34.0% w/w
28064-14-4	phenol, polymer with formaldehyde, glycidyl ether Alternative CAS number: 9003-36-5	26.0% w/w
17557-23-2	1,3-bis(2,3-epoxypropoxy)-2,2-dimethylpropane	3.0% w/w

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1333-86-4	Carbon black	0.8% w/w

4 First-aid measures

· **Description of first aid measures**
· **After inhalation:**
Remove person to fresh air and keep comfortable for breathing.
If feeling unwell: Call a POISON CENTRE or doctor.
· **After skin contact:**
Wash with plenty water.
If skin irritation or rash occurs: Get medical advice or attention.
Take off contaminated clothing and wash it before reuse.
· **After eye contact:**
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 or attention.
· **After swallowing:**
Rinse mouth.
Do NOT induce vomiting.
If symptoms persist consult doctor.

· **Most important symptoms and effects, both acute and delayed**
If exposed to metal fumes, chills and fever-like symptoms may occur 4-12 hours after exposure.

· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.

· **Special hazards arising from the substance or mixture**
Not flammable or combustible, but burns if involved in a fire. Produces irritating smoke of unknown toxicity in fires.
Prevent fire-fighting wash from entering waterway or sewer system.
Inhalation of metal fumes may cause metal fever and irritate the respiratory tract.
The flu-like symptoms of metal fever may be delayed, occurring 4 to 12 hours after exposure.
· **Hazardous combustion products:**
Carbon Oxides (COx)
toxic metal fumes

· **Advice for firefighters**
· **Protective equipment:** Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

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6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Remove or keep away all sources of extreme heat or open flames.
Avoid breathing mist, spray, or vapors.

· **Environmental precautions:**
Avoid release to the environment.
Do not allow to enter sewers/ surface or ground water.

· **Methods and material for containment and cleaning up:**
Not readily flowable.
Collect in a sealable, chemical-resistant container.
Wipe the residues with a paper towel and place dirty towels in container.
Use soap and water to remove the last traces of residue.

· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Precautions for safe handling**
Wear protective gloves and eye protection.
Wash hands and exposed skin thoroughly after handling.
Take off contaminated clothing and wash it before reuse.
Collect spillage.
Contaminated work clothing should not be allowed out of the workplace.
Avoid breathing the fumes, mist, and vapors.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:**
Keep in a dry and clean area, away from incompatible substances
· **Information about storage in one common storage facility:** Not required
· **Further information about storage conditions:** Keep receptacle tightly sealed.

· **Specific end use(s)** See section 1.2

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8 Exposure controls/ Personal protection

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
1314-13-2 zinc oxide	
EL (Canada)	STEL: 10 mg/m³ TWA: 2 mg/m³ respirable
EV (Canada)	STEL: 10 mg/m³ TWA: 2 mg/m³ respirable
PEL (USA)	TWA: 15* 5** mg/m³ *total dust **respirable fraction and fume
REL (USA)	STEL: 10** mg/m³ TWA: 5 mg/m³ Ceiling: 15* mg/m³ *dust only **fume
TLV (USA)	STEL: 10* mg/m³ TWA: 2* mg/m³ *respirable particulate matter
1344-28-1 aluminium oxide	
EL (Canada)	TWA: 1.0 mg/m³ respirable, as Al
EV (Canada)	TWA: 10 mg/m³ total dust
PEL (USA)	TWA: 15*; 5** mg/m³ *Total dust; ** Respirable fraction
REL (USA)	TWA: 10* 5** mg/m³ as Al*Total dust**Respirable/pyro powd./welding f.
TLV (USA)	TWA: 1* mg/m³ as Al; *as respirable fraction, A4
1333-86-4 Carbon black	
EL (Canada)	TWA: 3 mg/m³ IARC 2B
EV (Canada)	TWA: 3.5 mg/m³
PEL (USA)	TWA: 3.5 mg/m³
REL (USA)	TWA: 3.5* mg/m³ *0.1 in presence of PAHs;See Pocket Guide Apps.A+C
TLV (USA)	TWA: 3* mg/m³ *inhalable fraction, A3

· **Additional information:**
The lists that were valid during the creation were used as basis.
Refer to the national or regional occupational exposure limit regulation for abbreviations and acronyms.

· **Exposure controls**

· **Appropriate engineering controls** No further data; see section 7.

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· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
If the product is heated or worker has a known allergic reaction, consider using a full mask with organic vapor cartridge or with an independent air supply.
· **Protection of hands:**
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.


Protective gloves: EN374

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:**


Safety glasses or tightly sealed goggles: EN 166

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **Physical state**	Solid
· **Form:**	Pasty
· **Color:**	Dark grey
· **Odor:**	Light
· **Odor threshold:**	Not determined
· **Melting point/Melting range:**	Undetermined
· **Boiling point/Boiling range:**	>207 °C (>404.6 °F)
· **Flammability:**	Non flammable

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· **Explosion limits:**	
· **Lower:**	Not applicable
· **Upper:**	Not applicable
· **Flash point:**	149 °C (300.2 °F)
· **Auto igniting:**	Not determined
· **Decomposition temperature:**	Not determined
· **pH-value:**	Not applicable
· **Viscosity:**	
· **Kinematic at 20 °C (68 °F):**	>20.5 mm²/s
· **Dynamic:**	Not applicable
· **Solubility in / Miscibility with**	
· **Water:**	Insoluble.
· **Partition coefficient (n-octanol/water):**	Not determined
· **Vapor pressure:**	Not applicable
· **Relative density at 20 °C (68 °F):**	2.4
· **Vapor density (air=1):**	Not applicable
· **Particle characteristics**	Not determined

· **Other information**

· **Important information on protection of health and environment, and on safety.**	
· **Ignition temperature:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Organic solvents:**	Not available
· **VOC content:**	3.000 %
· **Solids content:**	100.0 %
· **Evaporation rate**	Not applicable.

10 Stability and reactivity

· **Reactivity** Reacts exothermically with amines.

· **Chemical stability** Chemically stable at normal temperatures and pressures.

· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.

· **Possibility of hazardous reactions** No dangerous reactions known.

· **Conditions to avoid** Avoid open flames, excessive heat, sparks, ignition sources, and incompatible substances.

· **Incompatible materials:**
Strong acids
Halogenated compounds
Strong oxidizing agents
Flax oils
Strong bases
Ammonia
Ethylene oxides

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alkali

· **Hazardous decomposition products:**
No dangerous decomposition products known.
Hazardous combustion products: see section 5.

11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
1314-13-2 zinc oxide		
Oral	LD50	7,950 mg/kg (rat)
1344-28-1 aluminium oxide		
Oral	LD50	>2,000 mg/kg (rat)
Inhalative	LC50/4 h	>2 mg/L (mouse)
28064-14-4 phenol, polymer with formaldehyde, glycidyl ether		
Oral	LD50	>2,000 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rabbit)
17557-23-2 1,3-bis(2,3-epoxypropoxy)-2,2-dimethylpropane		
Oral	LD50	2,000 mg/kg (rat)
Dermal	LD50	2,150 mg/kg (rabbit)
1333-86-4 Carbon black		
Oral	LD50	>15,400 mg/kg (rat)
Dermal	LD50	>3,000 mg/kg (rabbit)

· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** Irritating effect.
· **Sensitization:** Sensitization possible through skin contact.

· **Summary of effects and symptoms by route of exposure**
· **Eyes:** redness, serious irritation
· **Skin:**
rash, allergic contact dermatitis
redness, irritation
· **Inhalation:**
Low toxicity:
cough
sore throat
irritation of the respiratory tract
· **Swallowed:**
Low toxicity:
irritation
abdominal pain
diarrhea

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nausea
vomiting

· **Delayed and immediate effects as well as chronic effects from short and long-term exposure**
Prolonged and repeated exposure to uncured epoxy hardener may lead to skin sensitization.

· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
1333-86-4	Carbon black	2B

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:**
Very toxic to aquatic life with long lasting effect.
Avoid release to the environment.
Collect spillage.

1314-13-2 zinc oxide	
LC50	0.042 mg/L (fish)
28064-14-4 phenol, polymer with formaldehyde, glycidyl ether	
LC50 96h	>1–≤10 mg/L (not defined) In Europe, similar epoxy resin mixtures with CAS 28064-14-4 are generally classified as chronic category 2 marine pollutant due to LC50 96 h of >1 mg/L but ≤10 mg/L.
1333-86-4 Carbon black	
EC50/ 24 h	>5,600 mg/L (aquatic invertebrates)
EC50/ 72 h	>10,000 mg/L (aquatic algae and cyanobacteria)
EC0/ 3 h	>800 mg/L (microorganisms)
LC50	>1,000 mg/L (fish)

· **Persistence and degradability** No further relevant information available.

· **Bioaccumulative potential** No further relevant information available.

· **Mobility in soil** No further relevant information available.

· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable
· **vPvB:** Not applicable

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· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:** This material and its container must be disposed of as hazardous waste.
· **Uncleaned packagings:**
· **Recommendation:**
Containers may still present a chemical hazard/ danger when empty.
Dispose of contents in accordance with all local, regional, national, and international regulations.
Where possible retain label warnings and SDS and observe all notices pertaining to the product.

14 Transport information

· **UN-Number**	
· **DOT/TDG, IMDG, IATA**	UN3077
· **UN proper shipping name**	
· **DOT/TDG**	NOT REGULATED by DOT Environmentally hazardous substance, solid, n.o.s. (zinc oxide)
· **IMDG**	NOT REGULATED for sea freight IMDG according to 2.10.2.7 for sizes up to 5 kg. ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (zinc oxide)
· **IATA**	NOT REGULATED by Air IATA Special Provision A197 for sizes 5kg or less. Environmentally hazardous substance, solid, n.o.s. (zinc oxide)
· **Transport hazard class(es)**	
· **DOT/TDG, IMDG**	
· **Class**	9 Miscellaneous dangerous substances and articles
· **Label**	9

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· **IATA**

· **Class**	9 Miscellaneous dangerous substances and articles
· **Label**	9
· **Packing group**	
· **DOT/TDG, IMDG, IATA**	III
· **Environmental hazards:**	Product contains environmentally hazardous substances: zinc oxide
· **Marine pollutant:**	MARINE POLLUTANT
· **Special marking (IATA):**	ENVIRONMENTALLY HAZARDOUS Symbol (fish and tree)
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable
· **Transport/Additional information:**	
· **DOT/TDG**	
· **Quantity limitations**	On passenger aircraft/rail: 400 kg On cargo aircraft only: 400 kg
· **IMDG**	
· **Limited quantities (LQ)**	5 kg
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· **Special precautions for user**	Not applicable
· **Hazard identification number (Kemler code):**	90
· **EMS Number:**	F-A,S-F
· **Stowage Category**	A
· **Stowage Code**	SW23 When transported in BK3 bulk container, see 7.6.2.12 and 7.7.3.9.
· **UN "Model Regulation":**	UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (ZINC OXIDE), 9, III

* 15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **OSHA Hazard Communication Standard (29 CFR Part 1900)**
The safety data sheet and label comply with HCS 2024.

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· **Hazardous Products Act (R.S.C., 1985, c. H-3)**
The safety data sheet and label comply with the Hazardous Product Act and WHMIS 2023.

· **Sara**

· **Section 355 (extremely hazardous substances):**
None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**	
1314-13-2	zinc oxide
1344-28-1	aluminium oxide

· **TSCA (Toxic Substances Control Act):**
All components have the value ACTIVE.

· **Hazardous Air Pollutants**
None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**	
1333-86-4	Carbon black

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Carcinogenic categories**

· **TLV (Threshold Limit Value)**		
1344-28-1	aluminium oxide	A4
1333-86-4	Carbon black	A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**	
1333-86-4	Carbon black

· **Canadian substance listings:**

· **Canadian Domestic Substances List (DSL)**
All ingredients are listed.

· **Canadian Non-Domestic Substances List (NDSL)**
None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**
None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 1%)**	
1314-13-2	zinc oxide
1344-28-1	aluminium oxide

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· **HMIS-ratings (scale 0 - 4)**
Health = * 2
Fire = 1
Reactivity = 0

· **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.

· **Per- and polyfluoroalkyl substances (PFAS)**
None of the ingredients is listed.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Regulatory department
· **Contact:** sds@mgchemicals.com
· **Version number of previous version:** 7.01
· **Date of preparation** 12/08/2025
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
· *** Data compared to the previous version altered.**