



Safety Data Sheet

according to WHMIS 2023 and HCS 2024

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Date of issue 11/17/2025

Version number 2.02

Revision: 11/17/2025

1 Identification

Product identifier

Trade name: 4228A

Other Means of Identification: Red Insulating Varnish

Related Part Number: 4228A-Liquid, 4228A-55ML, 4228A-225ML, 4228A-1L, 4228A-4L, 4228A-18.9L

Application of the substance / the mixture High voltage protective coating

Uses advised against Not available

Details of the supplier of the safety data sheet

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

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

Flammable liquids – Category 3

H226 Flammable liquid and vapour.

Eye damage/irritation – Category 2A

H319 Causes serious eye irritation.

Specific target organ toxicity (single exposure) – Category 3
H336 May cause drowsiness or dizziness.

Label elements

GHS label elements

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

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· Hazard pictograms



GHS02 GHS07

· Signal word Warning

· Hazard-determining components of labeling:

n-butyl acetate
heptan-2-one
butan-1-ol
2-Ethyl-1-hexanol

· Hazard statements

H226 Flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

· Precautionary statements

P102 Keep out of reach of children.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof equipment.
P243 Take action to prevent static discharges.
P261 Avoid breathing mist, vapors or spray.
P264 Wash thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves, protective clothing, and eye protection.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312 Call a POISON CENTER or doctor if you feel unwell.
P337+P313 If eye irritation persists: Get medical advice.
P370+P378 In case of fire: Use CO₂, powder or water spray to extinguish.
P403+P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P501 Dispose of contents and container in accordance with local, regional, and national regulations.

· Other hazards Repeated exposure may cause skin dryness or cracking.

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3 Composition/Information on ingredients

Chemical characterization: Mixtures

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

Dangerous components:

123-86-4	n-butyl acetate	42% w/w
110-43-0	heptan-2-one	4% w/w
71-36-3	butan-1-ol	2% w/w
104-76-7	2-Ethyl-1-hexanol	0.8% w/w
149057-70-5	Ethyl-3-oxobutanoate	0.8% w/w
136-52-7	cobalt(II) 2-ethylhexanoate	<0.1% 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:

Take off immediately all contaminated clothing.
Wash with plenty of soap and water.

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

See section 11 for additional information.

Indication of any immediate medical attention and special treatment needed

No further relevant information available.

5 Fire-fighting measures

Extinguishing media

Suitable extinguishing agents:

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

For safety reasons unsuitable extinguishing agents:

Water with full jet

Special hazards arising from the substance or mixture

Prevent fire-fighting wash from entering waterway or sewer system.

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Vapors are heavier than air. Vapors may travel to sources of ignition near the ground. They can cause flash fire or ignite explosively.

- **Hazardous combustion products:** Carbon Oxides (COx)
- **Advice for firefighters**
 - **Protective equipment:** Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Remove or keep away all sources of extreme heat or open flames.
Avoid breathing mist, spray, or vapors.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Collect liquid in a sealable, chemical-resistant container.
Wash residue 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.
Avoid breathing mist, spray, or vapors.
Use only outdoors or in a well-ventilated area.
- **Information about protection against explosions and fires:**

Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Use explosion-proof apparatus / fittings and spark-proof tools.
Ground and bond container and receiving equipment.
- **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
Store in a well-ventilated place. Keep cool.
 - **Information about storage in one common storage facility:** Not required.

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- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store locked up.

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

* 8 Exposure controls/ Personal protection

- **Control parameters**

· Components with limit values that require monitoring at the workplace:	
123-86-4 n-butyl acetate	
EL (Canada)	STEL: 150 ppm TWA: 50 ppm
EV (Canada)	STEL: 950 mg/m ³ , 200 ppm TWA: 710 mg/m ³ , 150 ppm
PEL (USA)	TWA: 710 mg/m ³ , 150 ppm
REL (USA)	STEL: 950 mg/m ³ , 200 ppm TWA: 710 mg/m ³ , 150 ppm
TLV (USA)	STEL: 712 mg/m ³ , 150 ppm TWA: 238 mg/m ³ , 50 ppm
110-43-0 heptan-2-one	
EL (Canada)	TWA: 50 ppm
EV (Canada)	TWA: 115 mg/m ³ , 25 ppm
PEL (USA)	TWA: 465 mg/m ³ , 100 ppm
REL (USA)	TWA: 465 mg/m ³ , 100 ppm
TLV (USA)	TWA: 50 ppm
71-36-3 butan-1-ol	
EL (Canada)	TWA: 15 ppm Ceiling: 30 ppm
EV (Canada)	TWA: 20 ppm
PEL (USA)	TWA: 300 mg/m ³ , 100 ppm
REL (USA)	Ceiling: 150 mg/m ³ , 50 ppm Skin
TLV (USA)	TWA: 61 mg/m ³ , 20 ppm

- **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.
- **Personal protective equipment:**
 - **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.

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Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

• **Breathing equipment:**

Advice should be sought from respiratory protection specialists.

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

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	Liquid
• Form:	Viscous
• Color:	Red
• Odor:	Aromatic
• Odor threshold:	Not determined.
• Melting point/Melting range:	Undetermined.
• Boiling point/Boiling range:	116 °C (240.8 °F)
• Flammability:	Flammable.
• Explosion limits:	
• Lower:	1.2 Vol %
• Upper:	7.3 Vol %

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<ul style="list-style-type: none"> Flash point: Auto igniting: Decomposition temperature: pH-value: Viscosity: <ul style="list-style-type: none"> Kinematic: Dynamic: Solubility in / Miscibility with <ul style="list-style-type: none"> Water: Partition coefficient (n-octanol/water): Vapor pressure at 20 °C (68 °F): Density at 20 °C (68 °F): Relative density: Vapor density (air=1): Particle characteristics 	<p>25 °C (77 °F)</p> <p>220 °C (428 °F)</p> <p>Not determined.</p> <p>Not determined.</p> <p>Not determined.</p> <p>Not determined.</p> <p>Not miscible or difficult to mix.</p> <p>Not determined.</p> <p>10.7 hPa (8 mm Hg)</p> <p>0.81 g/cm³ (6.7595 lbs/gal)</p> <p>Not determined.</p> <p>Not determined.</p> <p>Not applicable</p>
<ul style="list-style-type: none"> Other information <ul style="list-style-type: none"> Important information on protection of health and environment, and on safety. <ul style="list-style-type: none"> Ignition temperature: Danger of explosion: Organic solvents: VOC content: Solids content: Evaporation rate 	<p>Product is not selfigniting.</p> <p>Product is not explosive. However, formation of explosive air/vapor mixtures are possible.</p> <p><49.00 %</p> <p><49.000 %</p> <p>>51.0 %</p> <p>Not determined.</p>

10 Stability and reactivity

- Reactivity** No further relevant information available.
- 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 oxidizing agents
Strong bases
Strong acids
- Hazardous decomposition products:**
No dangerous decomposition products known.

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Hazardous combustion products: see section 5.

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* 11 Toxicological information

· Information on toxicological effects

· Acute toxicity:

· LD/LC50 values that are relevant for classification:

ATE (Acute Toxicity Estimate)

Oral	LD50	20,297 mg/kg (rat)
Inhalative	LC50/4 h	>418 mg/kg (rabbit)

123-86-4 n-butyl acetate

Oral	LD50	>10,768 mg/kg (rat)
Dermal	LD50	>17,600 mg/kg (rabbit)
Inhalative	LC50/4 h	>21 mg/L (rat)

110-43-0 heptan-2-one

Oral	LD50	1,670 mg/kg (rat)
Dermal	LD50	12,600 µL/kg (rabbit)
Inhalative	LC50/4 h	>16.7 mg/kg (rabbit)

71-36-3 butan-1-ol

Oral	LD50	790 mg/kg (rat)
Dermal	LD50	3,400 mg/kg (rabbit)
Inhalative	LC50/4 h	8,000 mg/L (rat)

104-76-7 2-Ethyl-1-hexanol

Oral	LD50	2,049 mg/kg (rat)
Dermal	LD50	1,970 mg/kg (rabbit)
Inhalative	LC50/4 h	11 mg/L (ATE)

149057-70-5 Ethyl-3-oxobutanoate

Oral	LD50	2,000 mg/kg (rat)
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136-52-7 cobalt(II) 2-ethylhexanoate

Oral	LD50	3,129 mg/kg (rat)
Dermal	LD50	5,690 mg/kg (rat)

· Primary irritant effect:

· on the eye: Irritating effect.

· Summary of effects and symptoms by route of exposure

· Eyes:

redness, serious irritation
blurred vision
pain

· Skin:

redness, may cause mild irritation
dry skin

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- **Inhalation:**
dizziness or drowsiness
cough
sore throat
headache
Severe overexposure may lead to unconsciousness.

- **Swallowed:**
nausea
abdominal pain

- **Delayed and immediate effects as well as chronic effects from short and long-term exposure**
Prolonged or repeated exposure may defat skin and cause skin dryness and cracking, and local redness and discomfort.

- **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)		
136-52-7	cobalt(II) 2-ethylhexanoate	2A
· NTP (National Toxicology Program)		
None of the ingredients is listed.		

12 Ecological information

- **Toxicity**

· Aquatic toxicity:	
123-86-4 n-butyl acetate	
LC50 96h	18 mg/L (minnow)
110-43-0 heptan-2-one	
EC50/ 48 h	>100 mg/L (daphnia)
LC50 96h	131 mg/L (minnow)

- **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	UN1263
· UN proper shipping name	
· DOT/TDG, IATA	Paint
· IMDG	PAINT
· Transport hazard class(es)	
· DOT/TDG (Transport dangerous goods):	
	
· Class	3 Flammable liquids
· Label	3
· IMDG, IATA	
	
· Class	3 Flammable liquids
· Label	3
· Packing group	
· DOT/TDG, IMDG, IATA	III

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· Environmental hazards:	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
 Limited Quantity 4228A-55ML, 4228A-225ML, 4228A-1L, 4228A-4L	
· DOT/TDG	
· Quantity limitations	On passenger aircraft/rail: 60 L On cargo aircraft only: 220 L
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· Special precautions for user	Not applicable.
· Hazard identification number (Kemler code):	30
· EMS Number:	F-E, <u>S</u> -E
· Stowage Category	A
· UN "Model Regulation":	UN 1263 PAINT, 3, 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.

· **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):
71-36-3 butan-1-ol
136-52-7 cobalt(II) 2-ethylhexanoate

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· TSCA (Toxic Substances Control Act):		
123-86-4	n-butyl acetate	ACTIVE
110-43-0	heptan-2-one	ACTIVE
71-36-3	butan-1-ol	ACTIVE
104-76-7	2-Ethyl-1-hexanol	ACTIVE
136-52-7	cobalt(II) 2-ethylhexanoate	ACTIVE

· Hazardous Air Pollutants		
136-52-7	cobalt(II) 2-ethylhexanoate	

· Proposition 65

· Chemicals known to cause cancer:	
None of the ingredients is listed.	
· 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)	
None of the ingredients is listed.	
· NIOSH-Ca (National Institute for Occupational Safety and Health)	
None of the ingredients is listed.	

· Canadian substance listings:

· Canadian Domestic Substances List (DSL)	
123-86-4	n-butyl acetate
110-43-0	heptan-2-one
71-36-3	butan-1-ol
104-76-7	2-Ethyl-1-hexanol
136-52-7	cobalt(II) 2-ethylhexanoate
· 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%)	
All ingredients are listed.	

· HMIS-ratings (scale 0 - 4)

Health = *2
Fire = 3
Reactivity = 0

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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

· **Date of previous version** 03/06/2025

· **Version number of previous version:** 2.01

· **Date of preparation** 11/17/2025

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.**

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