838AR

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Identifier: 838AR

Other Means of Identification: Total Ground™ Carbon Conductive Paint

Related Part # 838AR-15ML, 838AR-15MLCA, 838AR-55ML, 838AR-900ML, 838AR-3.78L, 838AR-18.9L

Recommended Use and Restriction on Use

Use: Electrically conductive paint and EMI/RFI shield

Uses Advised Against: Not applicable

Details of Manufacturer or Importer

Manufacturer

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

☎ +1-800-340-0772
+1-905-331-1396
E-mail support@mgchemicals.com
Web www.mgchemicals.com

Distributor

Mouser Electronics
1000 North Main Street
Mansfield, TX 76063
USA

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

Section 2: Hazard(s) Identification

Classification of Hazardous Chemical

GHS Categories

Criteria		Category	Signal Word	Pictograms
Flammable Liquids		2	Danger	Flame
Eye Damage		1	Danger	Corrosive
Carcinogenicity		2	Warning	Health
Sensitization	Skin	1	Warning	Exclamation
Specific Target Organ Toxicity	Single Exposure	3	Warning	Exclamation

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
	H318: Causes serious eye damage
	H351: Suspected of causing cancer by inhalation

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Pictograms	Hazard Statements
	H317: May cause an allergic skin reaction H336: May cause drowsiness or dizziness

Prevention	Precautionary Statements
P102	Keep out of reach of children.
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.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical, ventilating and lighting equipment.
P243	Take action to prevent static discharge.
P280	Wear protective gloves, protective clothing, and eye protection.
P261	Avoid breathing mist, vapors, and spray.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.

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.
P303 +P361 + P352	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Wash with plenty of water or shower.
P333 + P313	If skin irritation or rash occurs: Get medical advice.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor.

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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 or doctor if you feel unwell.
Storage	**Precautionary Statements**
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
Disposal	**Precautionary Statements**
P501	Dispose of container in accordance to local, regional, and national 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	36%
110-19-0	isobutyl acetate	30%
71-36-3	1-butanol	10%
1333-86-4	carbon black	6%
108-65-6	1-methoxy-2-propyl acetate	4%
25619-56-1	barium bis(dinonylnaphthalenesulphonate)	0.5%

Section 4: First-Aid Measures

Exposure Condition	*GHS Code/Symptoms/Precautionary Statements*
IF ON SKIN (or hair)	P303 + P361 + P352, P333 + P317, P363, P308 + P313
Immediate Symptoms	*dry skin, redness, rash, allergic dermatitis*
Response	Take off immediately all contaminated clothing. Wash with plenty of water. If skin irritation or rash occurs: Get medical help. Wash contaminated clothing before reuse. IF exposed or concerned: Get medical advice.
IF IN EYES	P305 + P351 + P338, P310
Immediate Symptoms	*redness, pain, blurred vision, eye damage*
Response	Rinse cautiously with water for at least 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
IF INHALED	P304 + P340, P312, P308 + P313
Immediate Symptoms	*cough, sore throat, vomiting, headache, dizziness, drowsiness, shortness of breath*
Response	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. IF exposed or concerned, get medical advice.
IF SWALLOWED	P301 + P330, P331, P308 + P313
Immediate Symptoms	*abdominal pain, nausea, diarrhea, drowsiness, dizziness, vomiting, shortness of breath*
Response	Rinse mouth. Do NOT induce vomiting. IF exposed or concerned, get medical advice.

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. Prevent fire-fighting wash from entering waterway or sewer system.
Combustion Products	Produces carbon oxides (CO, CO_2), and other toxic fumes.
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	Avoid breathing the mist, spray, and vapors. Remove or keep away all sources of ignition or extreme heat.
Environmental Precautions	Avoid releasing to the environment. Prevent spill from entering drains and waterways.
Containment Methods	Contain with inert and nonflammable absorbent (such as soil, sand, or vermiculite).
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. **RECOMMENDATION:** Use a grounded stainless steel or carbon steel container.
Disposal Methods	Dispose of spill waste according to Section 13.

Section 7: Handling and Storage

Prevention	Keep out of reach of children.
	Obtain, read and follow all safety 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, and lighting equipment. Take action to prevent static discharge.
	Avoid breathing mist, vapors, and spray. Use only outdoors or in a well-ventilated area. Keep container tightly closed.
Handling	Wear protective gloves, protective clothing, and eye protection.
	Contaminated work clothing should not be allowed out of the workplace. Take off 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/Province	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
acetone	ACGIH	500 ppm	750 ppm
	U.S.A. OSHA PEL	1 000 ppm	Not established
	Canada AB	500 ppm	750 ppm
	Canada BC	250 ppm	500 ppm
	Canada ON	500 ppm	750 ppm
	Canada QC	750 ppm	1 000 ppm
isobutyl acetate	ACGIH	150 ppm	Not established
	U.S.A. OSHA PEL	150 ppm	Not established
	Canada AB	150 ppm	Not established
	Canada BC	150 ppm	Not established
	Canada ON	150 ppm	Not established
	Canada QC	150 ppm	Not established
1-butanol	ACGIH	20 ppm	Not established
	U.S.A. OSHA PEL	100 ppm	Not established
	Canada AB	20 ppm	Not established
	Canada BC	15 ppm	30 ppm (Ceiling)
	Canada ON	20 ppm	Not established
	Canada QC	50 ppm (Ceiling)	Not established
carbon black [a)]	ACGIH	3.5 mg/m^3	Not established
	U.S.A. OSHA PEL	3.5 mg/m^3	Not established
	Canada AB	3.5 mg/m^3	Not established
	Canada BC	3 mg/m^3	Not established
	Canada ON	3.5 mg/m^3	Not established
	Canada QC	3.5 mg/m^3	Not established
1-methoxy-2-propyl acetate	ACGIH	Not established	Not established
	U.S.A. OSHA PEL	50 ppm	Not established
	Canada AB	Not established	Not established
	Canada BC	50 ppm	75 ppm
	Canada ON	50 ppm	Not established
	Canada QC	Not established	Not established

Note: Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH[1], OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from the suppliers' SDSs were also consulted. Short term exposure limits (STEL) are for 15 min and long-term permissible exposure limits (PEL) for 8 h.

a) Respirable airborne particles

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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:** Ensure that glasses have side shields for lateral protection.
Skin Protection	For likely contacts, use of protective butyl rubber or other chemically resistant gloves. For incidental contacts, use nitrile or other chemically resistant gloves.
Respiratory Protection	For over-exposures up to 10 x OEL of mist, vapors, and spray, wear respirator such as a half-mask respirator with organic vapor cartridges. 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** [b]	2.4%
Appearance	Black	**Upper Flammability Limit** [b]	12.7%
Odor	Solvent like	**Vapor Pressure @20 °C** [b]	89 hPa [67 mmHg]
Odor Threshold	Not available	**Vapor Density**	≥2 (Air =1)
pH	Not available	**Relative Density @25 °C**	0.89
Freezing/Melting Point	Not available	**Solubility in Water**	Partly miscible
Initial Boiling Point [a]	56 °C [132 °F]	**Partition Coefficient n-octanol/water**	Not available
Flash Point [a]	-17 °C [1.4 °F]	**Auto-ignition Temperature** [a]	465 °C [869 °F]
Evaporation Rate	<1 (ButAc = 1)	**Decomposition Temperature**	Not available
Flammability	Highly flammable	**Viscosity @25 °C**	114 cP

a) Values based on acetone.
b) Values based on Raoult's Law and LeChatelier principle.

Section 10: Stability and Reactivity

Reactivity	Acetone reacts exothermically with phosphorous oxychloride, which can lead to an explosion.
Chemical Stability	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Ignition sources, open flames, excessive heat, and incompatible substances
Incompatibilities	Strong oxidizing agents, strong bases, strong reducing agents, acids
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

Eyes	Causes redness, pain, blurred vision and eye damage.
Skin	May cause dry skin, redness, rash, and allergic dermatitis.
Inhalation	May cause coughing, sore throat, headache, nausea, dizziness, drowsiness, and shortness of breath.
Ingestion	May cause abdominal pain, nausea, vomiting, diarrhea.
Chronic	Prolonged or repeated exposure may cause skin may cause skin dryness and cracking.

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation
acetone	5 800 mg/kg Rat	7426 mg/kg Rabbit	132 mg/L 3 h Rat
isobutyl acetate	13 413 mg/kg Rat	>17 400 mg/kg Rabbit	Not available
1-butanol	2 292 mL/kg Rat	3 434 mL/kg Rabbit	>17.76 mg/L 4 h Rat
carbon black	>15 g/kg Rat	>3 g/kg Rabbit	Not available
1-methoxy-2-propanol acetate	8 532 mg/kg Rat	>5 g/kg Rabbit	Not available
barium bis(dinonylnaphthalenesulphonate)	>15 800 mg/kg Rat	>7 940 mg/kg Rabbit	Not available
ATE	>2000 mg/kg	>2000 mg/kg	>20 mg/kg (vapour)

Note: Toxicity data from the ECHA databases was consulted.
The data from supplier SDSs were also consulted.

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Other Toxicological Effects

Skin Corrosion/Irritation	Based on available data, the classification criteria are not met.
Serious Eye Damage/Irritation	1-butanol causes serious eye damage. Contains mechanically abrasive particles.
Sensitization (allergic reactions)	Barium bis(dinonylnaphthalenesulphonate) can cause an allergic skin reaction.
Carcinogenicity (risk of cancer)	The carbon black [1333-86-4] is possibly carcinogenic by airborne routes of exposures under WHMIS 2015 and HCS 2012. **Carbon Black [1333-86-4]** IARC Group 2B: Possibly carcinogenic to humans ACGIH A4: Not classified as a human carcinogen CA Prop 65: Listed as a carcinogen (airborne, as unbound particles of respirable size) 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	Acetone, isobutyl acetate and 1-butanol can affect the central nervous system by inhalation causing drowsiness or dizziness.
STOT-Repeated Exposure	Based on available data, the classification criteria are not met.
Aspiration Hazard	Based on available data, the classification criteria are not met.

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.

Acute Ecotoxicity

Acetone, isobutyl acetate, butan-1-ol, and 2-methoxy-1-methylethyl acetate do not meet classification criteria for aquatic environmental toxicants with LC50 and EC50 of >100 mg/L.

- Acetone has a minimal LC50 96 h of 5 540 mg/L for Oncorhynchus mykiss (rainbow trout) and an EC50 48 h of 13 500 mg/L for Daphnia magna (water flea).
- Isobutyl acetate as a minimal LC50 48 h of 101 mg/L for Leuciscus idus melanotus and 250 mg/L for Daphnia magna (water flea).
- Butan-1-ol has a minimal LC50 96 h of 1 840 mg/L for Pimephales promelas (fathead minnow); and LC40 48 h of 44 mg/L, EC50 72 h of 648 mg/L Daphnia magna (water flea).
- The 2-methoxy-1-methylethyl acetate substance has a minimal LC50 96 h of 100 to 180 mg/L Salmo gairdneri (rainbow trout) and an EC50 48 h Daphnia magna (water flea).

Chronic Ecotoxicity

Available toxicity data does not meet classification thresholds.

Other Effects

Regulated Volatile Organic Compounds (VOC) content according to the US (EPA) and Canadian (CEPA) authorities.

Actual VOC = 58% (519 g/L)

Section 13: Disposal Information

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

Section 14: Transport Information

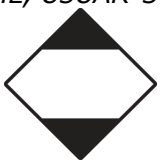
Ground

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

Sizes over 30 mL to 5 L

838AR-55ML, 838AR-900ML, 838AR-3.78L
Limited Quantity

Max Net Qty/Outer Pkg = 30 kg



Sizes under 30 mL
Cat. No. 838AR-15ML, 838AR-15MLCA
Excepted Quantity
Code **E2** Class 3

Sizes greater than 5 L

838AR-18.9L
UN number: UN1263
Shipping Name: PAINT
Class: 3
Packing Group: II
Marine Pollutant: No

Air

Refer to ICAO-IATA Dangerous Goods Regulations.

Sizes over 30 mL to 500 mL [a)]

838AR-55ML
Limited Quantity

Max Net Qty/Outer Pkg = 1 L

Sizes under 30 mL
Cat. No. 838AR-15ML, 838AR-15MLCA
Excepted Quantity
Code **E2** Class 3
On air waybill, write: "Dangerous Goods in Excepted Quantities".

Sizes up to 5 L (passenger), 60 L (cargo)

838AR-900ML, 838AR-3.78L
UN number: UN1263
Shipping Name: PAINT
Class: 3
Packing Group: II
Marine Pollutant: No

a) Max net quantity per inner packaging in a combination packaging

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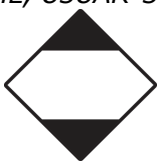
Sea

Refer to IMDG regulations.

Sizes over 30 mL to 5 L

838AR-55ML, 838AR-900ML, 838AR-3.78L
Limited Quantity

Max Net Qty/Outer Pkg = 30 kg



Sizes under 30 mL
Cat. No. 838AR-15ML, 838AR-15MLCA
Excepted Quantity
Code **E2** Class 3

Sizes greater than 5 L

838AR-18.9L
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.

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.

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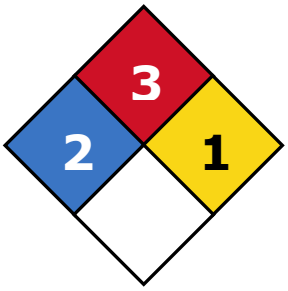
USA

Other Classifications

HMIS® RATING

HEALTH:	* 2
FLAMMABILITY:	3
PHYSICAL HAZARD:	1
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 does not contain substances 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# 67-64-1) and isobutyl acetate (CAS# 110-19-0), which is subject to the CERCLA reporting requirements at the 5 000 lb (2 268 kg) threshold.

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 carbon black, which is listed as a carcinogenic substance when airborne, as unbound particles of respirable size.

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 Chemicals' Regulatory Department

Date of Creation 22 October 2024

Supersedes 08 March 2024

Reason for Changes: Added new part number.

Reference

1) ACGIH *2023 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 (2023).

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists (USA)
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
Wt	Weight

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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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Phone: +1-905-331-1396

Mailing Addresses

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