838AR TOTAL GROUND™ CARBON CONDUCTIVE COATING (AEROSOL)

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Identifier: 838AR

Other Means of Identification: Total Ground Carbon Conductive Coating (Aerosol)

Related Part # 838AR-340G

Recommended Use and Restriction on Use

Use: Electrically conductive coating 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
Fax	+1-800-340-0773	**Fax**	+1-905-331-2682
E-mail	support@mgchemicals.com		
Web	www.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 Aerosol		2	Warning	Flame
Carcinogenicity		2	Warning	Health
Reproductive Toxicity		2	Warning	Health
Sensitization	Skin	1	Warning	Exclamation
Eye Irritation		2	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	**Warning**
Pictograms	**Hazard Statements**
	H223: Flammable Aerosol

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Pictograms	Hazard Statements
	H351: Suspected of causing cancer H361: Suspected of damaging fertility or the unborn child
	H317: May cause an allergic skin reaction H319: Causes serious eye irritation H336: May cause drowsiness or dizziness

Prevention	Precautionary Statements
P102	Keep out of reach of children.
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.
P211	Do not spray on an open flame or other ignition source.
P251	Do not piece or burn, even after use.
P264	Wash hands thoroughly after handling.
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 work place.

Response	Precautionary Statements
P308 + P313	IF exposed or concerned: Get medical advice or attention.
P302 + P352	IF ON SKIN: Wash with plenty of water.
P333 + P313	If skin irritation or rash occurs: Get medical advice or attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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Response	Precautionary Statements
P337 + P313	If eye irritation persists: Get medical advice or attention.
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**
P410 + P412	Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
Disposal	**Precautionary Statements**
P501	Dispose of container in accordance to local, regional, national, and international regulations.

Hazards Not Otherwise Classified

Other Criteria	Hazard Statements/Precautionary Statement	Signal Word	Pictograms
Simple Asphyxiant	May displace oxygen and cause rapid suffocation.	Warning	None
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	21%
78-93-3	2-butanone	20%
108-10-1	4-methylpentan-2-one	12%
74-98-6	propane	12%
67-63-0	propan-2-ol	7%
75-28-5	isobutane	6%
123-86-4	n-butyl acetate	6%
141-78-6	ethyl acetate	4%
1333-86-4	carbon black	3%
108-65-6	1-methoxy-2-propyl acetate	2%
25619-56-1	barium bis(dinonylnaphthalenesulphonate)	0.2%

Section 4: First-Aid Measures

Exposure Condition	*GHS Code/Symptoms/Precautionary Statements*
IF ON SKIN	P302 + P352, P362 + P364, P333 + P313
Immediate Symptoms	*dry skin, redness, rash, allergic dermatitis*
Response	Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice or attention.
IF IN EYES	P305 + P351 + P338, P337 + P313
Immediate Symptoms	*redness, pain, blurred vision, possible corneal damage*
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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IF INHALED	P304 + P340, P312, P308 + P313
Immediate Symptoms	*cough, sore throat, headache, dizziness, drowsiness, shortness of breath*
Response	Remove person to fresh air and keep comfortable for breathing. IF exposed or concerned: Get medical advice or attention.
IF SWALLOWED	P301 + P330, P331, P308 + P313
Immediate Symptoms	*low toxicity: abdominal pain, nausea, diarrhea, drowsiness, dizziness, vomiting, shortness of breath*
Response	Rinse mouth. Do NOT induce vomiting. IF exposed or concerned: Get medical advice or attention.

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	Aerosols containers may erupt with force at temperatures above 50 °C [122 °F]. Produces irritating and toxic fumes in fires or in contact with hot surfaces. 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), formaldehyde 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	Not applicable
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 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. Do not spray on an open flame or other ignition source. Do not piece or burn, even after use. Avoid breathing mist, vapors, and spray. Use only outdoors or in a well-ventilated area.
Handling	Wash hand thoroughly after handling. Wear protective gloves, eye protection, protective clothing, and face protection. Contaminated work clothing should not be allowed out of the work place. Take off contaminated clothing and wash it before reuse.
Storage	Protect from sunlight. Do not expose to temperatures exceeding 50 °C [122 °F]. Store in a well-ventilated place. Keep container tightly closed. 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 U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	500 ppm 1 000 ppm 500 ppm 250 ppm 500 ppm 750 ppm	750 ppm Not established 750 ppm 500 ppm 750 ppm 1 000 ppm
2-butanone	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	200 ppm 200 ppm 200 ppm 50 ppm 200 ppm 150 ppm	125 ppm 300 ppm 300 ppm 100 ppm 300 ppm 300 ppm
4-methylpentan-2-one	ACGIH [a)] U.S.A. OSHA PEL Canada AB Canada BC [b)] Canada ON Canada QC	20 ppm 100 ppm 50 ppm 20 ppm 50 ppm 50 ppm	75 ppm Not established 75 ppm 75 ppm 75 ppm 75 ppm
propane	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	See footnote [a)] 1 000 ppm 1 000 ppm 1 000 ppm 1 000 ppm 1 000 ppm	Not established Not established Not established Not established Not established Not established
propan-2-ol	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	200 ppm (TWA) 400 ppm 200 ppm 200 ppm 200 ppm 400 ppm	400 ppm Not established 400 ppm 400 ppm 400 ppm 500 ppm
isobutane *alkane (C2-C4)* *aliphatic hydrocarbon gas*	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	See footnote [a)] Not established 1 000 ppm 1 000 ppm 800 ppm Not established	Not established Not established Not established Not established Not established Not established

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Chemical Name	Country/Province	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
n-butyl acetate	ACGIH	150 ppm	Not established
	U.S.A. OSHA PEL	150 ppm	Not established
	Canada AB	150 ppm	200 ppm
	Canada BC	20 ppm	200 ppm
	Canada ON	150 ppm	Not established
	Canada QC	150 ppm	200 ppm
ethyl acetate	ACGIH	400 ppm	Not established
	U.S.A. OSHA PEL	400 ppm	Not established
	Canada AB	400 ppm	Not established
	Canada BC	150 ppm	Not established
	Canada ON	400 ppm	Not established
	Canada QC	400 ppm	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) Refer to the ACGIH Appendix F: Minimum Oxygen Content for Asphyxia TLV Basis

Engineering Controls

Ventilation

Keep airborne concentrations below the occupational exposure limits (OEL).

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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/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, in aerosol format	**Lower Flammability Limit** [b]	2%
Appearance	Black	**Upper Flammability Limit** [b]	9.4%
Odor	Ester-like	**Vapor Pressure @20 °C**	Not available
Odor Threshold	Not available	**Vapor Density**	>1
pH	Not available	**Relative Density @25 °C**	0.83
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	Flammable	**Viscosity @25 °C**	Not available

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

Section 10: Stability and Reactivity

Reactivity	Not available
Chemical Stability	Chemically stable at normal temperatures and pressures.
Conditions to Avoid	Avoid direct sunlight, temperatures above 50 °C [122 °F], open flames, sparks, 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 possible corneal damage.
Skin	May cause dry skin, redness, rash, and allergic dermatitis.
Inhalation	May cause coughing, sore throat, headache, dizziness, drowsiness, and shortness of breath.
Ingestion	Low toxicity: May cause abdominal pain, nausea, diarrhea, drowsiness, dizziness, vomiting, and shortness of breath.
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	20 mL/kg Rabbit [a)]	16 000 ppm 4 h Rat [a)]
2-butanone	2 737 mg/kg Rat	6 480 mg/kg Rabbit	23 500 mg/m^3 8 h Rat
4-methylpentan-2-one	2.08 g/kg Rat	>2 000 mg/kg Rat	>2 000 ppm 4 h Rat
propane	Not applicable	Not applicable	>800 000 ppm 4 h Rat
propane-2-ol	3 600 mg/kg Rat	12 800 mg/kg Rabbit	16 000 ppm 8 h Rat
isobutane	Not applicable	Not applicable	>570 000 ppm 4 h Rat
n-butyl acetate	>10 768 mg/kg Rat	>17 600 mg/kg Rabbit	390 ppm 4 h Rat
ethyl acetate	5 620 mg/kg Rat	>20 000 mg/kg Rabbit	45 g/m^3 2 h Mouse
carbon black	>15 g/kg Rat	>3 g/kg Rabbit	Not available

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Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation
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

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

Other Toxicological Effects

Skin Corrosion/Irritation

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

Serious Eye Damage/Irritation

Acetone, butanone, 4-methypentan-2-one, propan-2-ol, ethyl acetate and barium bis (dinonylnaphthalenesulphonate) can cause eye irritation.

Sensitization
(allergic reactions)

Barium bis(dinonylnaphthalenesulphonate) can cause an allergic skin reaction.

Carcinogenicity
(risk of cancer)

4-methylpentan-2-one [CAS# 108-10-1]

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: Animal studies through inhalation show evidence of carcinogenic effects.

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)

According to California Proposition 65 4-methylpentan-2-one is known to cause developmental effects in mice.

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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, 2-butanone, propan-2-ol, n-butyl acetate and ethyl acetate can affect the central nervous system by inhalation causing drowsiness or dizziness. 4-methylpentan-2-one can cause respiratory irritation.
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.

None of the ingredients are not classified as an environmental hazard according to GHS criteria.

Acute Ecotoxicity

Available toxicity data does not meet classification thresholds.

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 = 71% (587 g/L)

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 1 L and under **Limited Quantity** 	

Air

Refer to ICAO-IATA Dangerous Goods Regulations.	
Sizes 1 L and under **Limited Quantity** Max Net Qty/Pkg 30 kg G 	**UN number**: UN1950 **Shipping Name:** AEROSOLS, flammable **Class:** 2.1 **Packing Group**: Not applicable **Marine Pollutant:** No

Sea

Refer to IMDG regulations.	
Sizes 1 L and under **Limited Quantity** 	**UN number**: UN1950 **Shipping Name:** AEROSOLS, flammable **Class:** 2.1 **Packing Group**: Not applicable **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.

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.

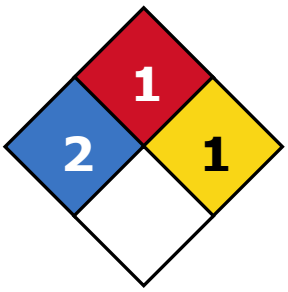
USA

Other Classifications

HMIS® RATING

HEALTH:	* 2
FLAMMABILITY:	1
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 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), which is subject to the CERCLA reporting requirements at the 5 000 lb (2 268 kg) threshold.

This product contains 4-methylpentan-2-one (CAS# 108-10-1; reportable quantity = 1 000 lb), which are subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372.

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This product contains propan-2-ol (CAS # 67-63-0) which is subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372.

This product contains n-butyl acetate (CAS# 123-86-4) which is subject to the CERCLA reporting requirements at the 5 000 lb (2 268 kg) threshold.

This product contains ethyl acetate (CAS# 141-78-6), 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 4-methylpentan-2-one (CAS# 108-10-1), which is listed as carcinogen and reproductive toxicant in California.

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	12 January 2023
Supersedes	13 September 2021

Reason for Changes: Changes to classification information, section 2.

Reference

1) ACGIH *2022 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 (2022).

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838AR TOTAL GROUND™ CARBON CONDUCTIVE COATING (AEROSOL)

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

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.

Email: support@mgchemicals.com

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Mailing Addresses

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