



Quality System Certified to ISO 9001:2008

SAI Global File #004008
Burlington, Ontario, Canada

SUPER WASH ELECTRONICS CLEANER

406B-AEROSOL

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Name: Contact Cleaner with Silicones

SDS Code: 406B-Aerosol

Related Part # 406B-425G

Recommended Use and Restriction on Use

Use: Zero residue electronic cleaner

Uses Advised Against: Do NOT use on live circuits or in presence of ignition source

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

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WEB www.mgchemicals.com

☎ +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 ☎: **+1-800-424-9300**

For emergencies involving dangerous goods; Collect 24/7

CANADA: Call CANUTEC ☎: **+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
Flammable Aerosol	2	Danger	Flame
Gases Under Pressure	Liquefied gas	Warning	Gas cylinder
Aspiration Hazard	1	Danger	Health
Reproductive Toxicity	2	Warning	Health
Skin irritation	2	Warning	Exclamation
Specific Target Organ Toxicity Single Exposure	3	Warning	Exclamation
Hazardous to the Aquatic Environment Chronic	2	none	Environment

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
	H223: Flammable aerosol
	H280: Contains gas under pressure; may explode if heated
	H304: May be fatal if swallowed and enters airways H361: Suspected of damaging fertility or the unborn child

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Pictograms	Hazard Statements
	<p>H315: Causes skin irritation H336: May cause drowsiness or dizziness</p>
	<p>H411: Toxic to aquatic life with long lasting effects</p>
Prevention	Precautionary Statements
<p>P102 P201 P202 P261 P271 P210 P211 P251 P264 P280 P273</p>	<p>Keep out of reach of children. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing mist/vapors/spray. Use only outdoors or in a well-ventilated area. 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 pierce or burn, even after use. Wash hands thoroughly after handling. Wear protective gloves/protective clothing/eye protection. Avoid release to the environment.</p>
Response	Precautionary Statements
<p>P308 + P313 P301 + P310, P331 P302 + P352 P332 + P313 P362 + P364 P304 + P340 P312 P391</p>	<p>IF exposed or concerned: Get medical advice/attention. IF SWALLOWED: Immediately call a POISON CENTER/doctor. Do NOT induce vomiting. IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. Collect spillage.</p>

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Storage	Precautionary Statements
P410 + P412	Protect from sunlight. Do not expose to temperatures exceeding 50 °C [122 °F].
P403	Store in a well-ventilated place.
P405	Store locked up.
Disposal	Precautionary Statements
P501	Dispose of contents/container in accordance to local/regional/international 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)
107-83-5	methyl-2-pentane	28-35%
75-37-6	1,1-difluoroethane ^{a)}	30%
96-14-0	methyl-3-pentane	11-14%
79-29-8	dimethyl-2,3-butane	11-14%
75-83-2	dimethyl-2,2-butane	7-11%
109-66-0	pentane	4-7%
110-54-3	n-hexane	1-4%

a) Commonly referred to as HFC-152a

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Section 4: First-Aid Measures

<i>Exposure Condition</i>	<i>GHS Code/Symptoms/Precautionary Statements</i>
IF SWALLOWED	P301 + P310, P331, P308 + P313
Immediate Symptoms	<i>nausea, weakness, headache, abdominal pain, drowsiness, dizziness, unconsciousness</i>
Response	Immediately call a POISON CENTER/doctor. Do NOT induce vomiting. IF exposed or concerned: Get medical advice/attention.
IF ON SKIN	P302 + P352, P332 + P313, P362 + P364, P308 + P313
Immediate Symptoms	<i>dry skin, redness, irritation</i>
Response	Wash with plenty of water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. IF exposed or concerned: Get medical advice/attention.
IF INHALED	P304 + P340, P312, P308 + P313
Immediate Symptoms	<i>nausea, weakness, headache, drowsiness, dizziness, respiratory irritation, unconsciousness</i>
Delayed Symptoms	<i>deep and rapid breathing, nausea</i>
Response	Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. IF exposed or concerned: Get medical advice/attention.
IF IN EYES	P305 + P351 + P338, P308 + P313
Immediate Symptoms	<i>redness, pain</i>
Response	Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical advice/attention.

SUPER WASH ELECTRONICS CLEANER**406B-AEROSOL****Section 5: Fire-Fighting Measures**

Extinguishing Media	In case of fire: Use dry chemical, carbon dioxide, chemical foam. 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), halogenated compounds, and hydrogen fluorides.
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	Remove or keep away all sources of extreme heat or open flames. Avoid breathing the mist/spray/vapors.
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.
Disposal Methods	Dispose of spill waste according to Section 13.

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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. Do not spray on an open flame or other ignition source. Do not pierce or burn, even after use.

Avoid breathing mist/vapors/spray. Use only outdoors or in a well-ventilated area.

Handling

Wear protective gloves/protective clothing/eye protection.

Wash hands thoroughly after handling.

Avoid release to the environment.

Storage

Protect from sunlight. Do not expose to temperatures exceeding 50 °C [122 °F].

Store in well ventilated place.

Store locked up.

Section 8: Exposure Controls/Personal Protection

Substances with Occupational Exposure Limit Values

Chemical Name	Country	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
methyl-2-pentane <i>Hexane isomers</i> (except <i>n-Hexane</i>)	ACGIH	500 ppm	1 000 ppm
	U.S.A. OSHA PEL	(500 ppm) ^{a)}	(1 000 ppm) ^{a)}
	Canada AB	500 ppm	1 000 ppm
	Canada BC	200 ppm	Not established
	Canada ON	500 ppm	1 000 ppm
1,1-difluoroethane	Canada QC	500 ppm	1 000 ppm
	ACGIH	Not established	Not established
methyl-3-pentane <i>Hexane isomers</i> (except <i>n-Hexane</i>)	U.S.A. OSHA PEL	Not established	Not established
	Canada	Not established	Not established
	ACGIH	500 ppm	1 000 ppm
	U.S.A. OSHA PEL	(500 ppm) ^{a)}	(1 000 ppm) ^{a)}
	Canada AB	500 ppm	1 000 ppm
Canada BC	200 ppm	Not established	
Canada ON	500 ppm	1 000 ppm	
Canada QC	500 ppm	1 000 ppm	

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Chemical Name	Country	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
dimethyl-2,3-butane <i>Hexane isomers (except n-Hexane)</i>	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	500 ppm (500 ppm) ^{a)} 500 ppm 200 ppm 500 ppm 500 ppm	1 000 ppm (1 000 ppm) ^{a)} 1 000 ppm Not established 1 000 ppm 1 000 ppm
dimethyl-2,2-butane <i>Hexane isomers (except n-Hexane)</i>	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	500 ppm (500 ppm) ^{a)} 500 ppm 200 ppm 500 ppm 500 ppm	1 000 ppm (1 000 ppm) ^{a)} 1 000 ppm Not established 1 000 ppm 1 000 ppm
pentane	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	600 ppm 1000 ppm 600 ppm 600 ppm 600 ppm 120 ppm	Not established Not established Not established Not established Not established Not established
n-hexane	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	50 ppm ^{b)} 500 ppm 50 ppm 20 ppm ^{b)} 50 ppm ^{b)} 50 ppm	Not established Not established Not established Not established Not established Not established

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 by RTECS database² and data 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.

a) Value vacated (retracted) under court order, but still in effect in some states.

b) Skin – significant exposure through skin route

Engineering Controls

Ventilation

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

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SUPER WASH ELECTRONICS CLEANER**406B-AEROSOL****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.

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Section 9: Physical and Chemical Properties

Physical State	Liquid	Lower Flammability Limit	1%
Appearance	Clear	Upper Flammability Limit	7%
Odor	Mild hydrocarbon	Vapor Pressure @20 °C	33 kPa [250 mmHg]
Odor Threshold	Not available	Vapor Density	3 (Air =1)
pH	Not available	Specific Gravity	0.66
Freezing/Melting Point	Not available	Solubility in Water	Immiscible
Boiling Point	52 °C [125 °F]	Partition Coefficient	Not available
Flash Point ^{a)}	-29 °C [-20 °F]	Auto-ignition Temperature	Not available
Evaporation Rate	0.8 (Ether = 1)	Decomposition Temperature	Not available
Flammability (solid, gas)	Not applicable	Viscosity @40 °C	<20.5 mm ² /s

a) Closed cup flash point

Section 10: Stability and Reactivity

Reactivity	Not available
Chemical Stability	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Temperatures above 50 °C [122 °F], open flames, other ignition sources and incompatible substances
Incompatibilities	Strong oxidizing agents, strong acids, strong bases, halogenated compounds, aluminum at temperatures ≥49 °C [>120 °F], peroxides.
Polymerization	Will not occur
Decomposition	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5.

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Section 11: Toxicological Information

Routes of Exposure

Ingestion, Inhalation, Skin Contact, and Eye Contact

Symptoms Summary

- Skin** May cause dry skin, redness, and irritation.
- Eyes** May cause redness and pain.
- Inhalation** May cause nose, throat and lung irritation. Overexposure may lead to visual impairment and central nervous system effects such as dizziness, drowsiness, or weakness
- Ingestion** Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis. See inhalation symptoms.
- Chronic** Prolonged or repeated exposure may cause skin dryness, cracking, as well as defatting the skin.

Ingestion or inhalation of paint material, mist, or vapor during pregnancy may increase the chances fetal death and developmental defects.

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation
methyl-2-pentane	Not available	Not available	3 125 ppm 4 h Rat ^{a)}
1,1-difluoroethane	Not available	Not available	1 500 g/m ³ 4 h Rat
methyl-3-pentane	Not available	Not available	Not available
dimethyl-2,3-butane	Not available	Not available	Not available
dimethyl-2,2-butane	Not available	Not available	Not available
pentane	>2 000 mg/kg Rat	Not available	<20 000 ppm Rat 4 h (vapor)
n-hexane	15 480 mg/kg Rat	>1.3 g/kg Rabbit ^{a)}	627 000 ppm 3 min Rat

Note: Toxicity data from the RTECS² and ECHA databases were consulted. The data from supplier (M)SDS were also consulted.

a) Supplier SDS

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SUPER WASH ELECTRONICS CLEANER**406B-AEROSOL****Other Toxicological Effects**

Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/irritation	Based on available data, the classification criteria are not met.
Sensitization (allergic reactions)	Based on available data, the classification criteria are not met.
Carcinogenicity (risk of cancer)	Not classified or listed as a carcinogen by IARC, ACGIH, CA Prop 65, or NTP.
Mutagenicity (risk of heritable genetic effects)	Based on available data, the classification criteria are not met.
Reproductive Toxicity (risk to sex functions)	The n-hexane component was found to harm fetus in animal studies.
Teratogenicity (risk of fetus malformation)	Harm to fetus found in animal studies.
STOT-single exposure	Hexane isomers 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	Mixture is a class 1 aspiration hazard. It contains over 10% class 1 aspiration hazard components and has a mixture viscosity of <math><20.5 \text{ mm}^2/\text{s}</math> at 40 °C.

SUPER WASH ELECTRONICS CLEANER**406B-AEROSOL****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.

Similar mixtures of isoalkanes C6-C7 with <5% n-hexane have a LC50 of 11.4 mg/L for rainbow trout (*Oncorhynchus mykiss*) 96 h, and an EL50 of 3.0 mg/L water flea (*Daphnia magna*) 48 h.

Acute Ecotoxicity

Category 2

Toxic to aquatic life

Avoid release to the environment.

Chronic Ecotoxicity

Category 2

Toxic to aquatic life with long lasting effects

Avoid release to the environment. Collect spillage.

Biodegradability

Not available

Other Effects

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

Actual VOC = 75% [495 g/L]

Section 13: Disposal Information

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

SUPER WASH ELECTRONICS CLEANER**406B-AEROSOL****Section 14: Transport Information****Ground**

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

Limited Quantity**UN number:** UN1950**Shipping Name:**

AEROSOLS, flammable

Class: 2.1**Packing Group:** Not applicable**Marine Pollutant:** Yes**Air**

Refer to ICAO-IATA Dangerous Goods Regulations.

Limited Quantity**UN number:** UN1950**Shipping Name:**

AEROSOLS, flammable

Class: 2.1**Packing Group:** Not applicable**Marine Pollutant:** Yes**Sea**

Refer to IMDG regulations.

Limited Quantity**UN number:** UN1950**Shipping Name:**

AEROSOLS, flammable

Class: 2.1**Packing Group:** Not applicable**Marine Pollutant:** Yes

Note: Shipper must be appropriately trained and certified before involvement with the transport of dangerous goods.

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Section 15: Regulatory Information

Canada

Domestic Substance List (DSL) / Non-Domestic Substance Lists (NDSL)

All hazardous ingredients are listed on the DSL.

Industry and Science Canada

MG Labels products intended for the workplace to conform to WHMIS labeling regulations. Product identification, net quantity declaration, minimum printing type size heights, and packaging of this product are in compliance.

Health Canada

Products produced by MG Chemicals intended for retail display conform to the Canadian Consumer Labeling Regulations.

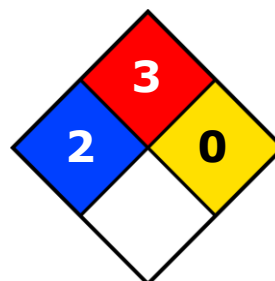
USA

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 does not contain substances that are listed as hazardous air pollutants.

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EPCRA (Emergency Planning and Right to Know Act, USA, 40 CFR 372.45)

This product contains n-hexane (CAS# 110-54-3) which has a 5 000 lb reporting quantity requirements in 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 does not contain any substances known to be listed in California.

Europe

RoHS (Restriction of Hazardous Substances Directive)

This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, or PBDE's, 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	Michel Hachey
Date of Review	28 March 2016
Supersedes	09 May 2013
Reason for Changes:	Reclassification due to new composition information in compliance with HCS 2012 and WHMIS 2015.

Reference

- 1) ACGIH 2013 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 (2013).
- 2) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®)

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Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists (USA)
ECHA	European Chemicals Agency
EU	European Union
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

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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