



SAFETY DATA SHEET

MEMCHEM MCT201

1. Identification

Product identifier MEMCHEM MCT201
Other means of identification None.
Recommended use Membrane cleaner
Recommended restrictions None known.

Company/undertaking identification

GE Betz, Inc.
 4636 Somerton Road
 Trevoese, PA 19053
 T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards Not classified.
Health hazards Serious eye damage/eye irritation Category 2A
 Specific target organ toxicity, single exposure Category 3 respiratory tract irritation
OSHA defined hazards Combustible dust

Label elements



Signal word Warning
Hazard statement Causes serious eye irritation. May cause respiratory irritation. May form combustible dust concentrations in air.

Precautionary statement

Prevention Prevent dust accumulation to minimize explosion hazard. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Avoid breathing dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear eye protection/face protection. Observe good industrial hygiene practices.

Response If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. In case of fire: Use appropriate media to extinguish.

Storage Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information None.

3. Composition/information on ingredients

Substance

Components	CAS #	Percent
Citric acid	77-92-9	90 - 100

Composition comments Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact Do not rub eyes. Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting. Rinse mouth. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Dusts may irritate the respiratory tract, skin and eyes.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

General information If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO₂). Apply extinguishing media carefully to avoid creating airborne dust. Avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical Explosion hazard: Avoid generating dust; fine dust dispersed in air in sufficient concentrations and in the presence of an ignition source is a potential dust explosion hazard. During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Fire fighting equipment/instructions In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Cool containers / tanks with water spray.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards May form combustible dust concentrations in air.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Use only non-sparking tools. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. See Section 8 of the SDS for Personal Protective Equipment. For personal protection, see section 8 of the SDS. Wear protective clothing, gloves and safety goggles.

Methods and materials for containment and cleaning up

Ventilate the area. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Flush with plenty of water. Spread sand/grit. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Stop the flow of material, if this is without risk.

Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Avoid discharge into drains, water courses or onto the ground.

Environmental precautions

7. Handling and storage

Precautions for safe handling

Minimize dust generation and accumulation. Avoid significant deposits of material, especially on horizontal surfaces, which may become airborne and form combustible dust clouds and may contribute to secondary explosions. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Explosion-proof general and local exhaust ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Store away from oxidizers and bases. Store in a cool, dry place out of direct sunlight.

8. Exposure controls/personal protection

Occupational exposure limits

No exposure limits noted for ingredient(s).

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Explosion-proof general and local exhaust ventilation. Provide eyewash station.

Individual protection measures, such as personal protective equipment

Eye/face protection

Airtight chemical goggles.

Skin protection

Hand protection

Wear appropriate chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Suitable gloves can be recommended by the glove supplier. Glove selection must take into account any solvents and other hazards present.

Other

Wear suitable protective clothing.

Respiratory protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Color

White

Physical state

Powder

Odor

None

Odor threshold

Not available.

pH in aqueous solution

2.2 (0.1N SOL.)

Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	Not applicable.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	< 1 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	(Air = 1)
Relative density	Not available.
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	68 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Viscosity temperature	70 °F (21 °C)
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Percent volatile	0 (ASTM 3960-93)

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Keep away from heat, sparks and open flame. Minimize dust generation and accumulation.
Incompatible materials	Bases, alkalis (organic). Avoid contact with strong oxidizers.
Hazardous decomposition products	Oxides of carbon evolved in fire.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system.
Skin contact	Prolonged or repeated contact may cause irritation.
Eye contact	Causes serious eye irritation.
Ingestion	May cause burns in mouth, throat and/or stomach.
Symptoms related to the physical, chemical and toxicological characteristics	Irritant effects. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Dusts may irritate the respiratory tract, skin and eyes.

Information on toxicological effects

Acute toxicity	May cause respiratory irritation.
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Product	Species	Test Results
MEMCHEM MCT201 (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2000 mg/kg, (Calculated according to GHS additivity formula)
<i>Oral</i>		
LD50	Rat	5400 mg/kg, (Calculated according to GHS additivity formula)

Components	Species	Test Results
Citric acid (CAS 77-92-9)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2000 mg/kg
<i>Oral</i>		
LD50	Rat	5400 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Causes serious eye irritation.
Respiratory or skin sensitization	
Respiratory sensitization	This product is not expected to cause respiratory sensitization.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
IARC Monographs. Overall Evaluation of Carcinogenicity	Not listed.
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)	Not regulated.
US. National Toxicology Program (NTP) Report on Carcinogens	Not listed.
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	May cause respiratory irritation.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not an aspiration hazard.

12. Ecological information

Ecotoxicity

Product	Species	Test Results	
MEMCHEM MCT201			
	LC50	Ceriodaphnia	755 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)
		Fathead Minnow	2970 mg/L, Static Renewal Bioassay, 96 hour, (pH adjusted)
	NOEL	Ceriodaphnia	360 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)
		Fathead Minnow	1250 mg/L, Static Renewal Bioassay, 96 hour, (pH adjusted)
Aquatic			
Crustacea	LC50	Daphnia magna	1060 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)

Product	Species	Test Results
	NOEL Daphnia magna	580 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)

* Estimates for product may be based on additional component data not shown.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)	
Citric acid	-1.64
Bioconcentration factor (BCF)	
Citric acid	3

Mobility in soil No data available.

Other adverse effects Not available.

Persistence and degradability

	Testing has shown product to be readily biodegradable.
- COD (mgO2/g)	780
- BOD 5 (mgO2/g)	430
- BOD 28 (mgO2/g)	455
- Closed Bottle Test (% Degradation in 28 days)	58
- Zahn-Wellens Test (% Degradation in 28 days)	74
- TOC (mg C/g)	370

13. Disposal considerations

Disposal instructions	Dispose of contents/container in accordance with local/regional/national/international regulations. Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT	Not regulated as dangerous goods.
IATA	Not regulated as dangerous goods.
IMDG	Not regulated as dangerous goods.

15. Regulatory information

US federal regulations	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)	Not regulated.
CERCLA Hazardous Substance List (40 CFR 302.4)	Not listed.
SARA 304 Emergency release notification	Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

US state regulations

US - Massachusetts RTK - Substance List

Not regulated.

US - Pennsylvania RTK - Hazardous Substances

Not regulated.

US - Rhode Island RTK

Not regulated.

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. New Jersey Worker and Community Right-to-Know Act

Not listed.

US. Pennsylvania Worker and Community Right-to-Know Law

Not listed.

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

16. Other information, including date of preparation or last revision

Issue date Jul-29-2014

Revision date	Jun-20-2016
Version #	3.0
Further information	Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.
List of abbreviations	<p>CAS: Chemical Abstract Service Registration Number ACGIH: American Conference of Governmental Industrial Hygienists NOEL: No Observed Effect Level STEL: Short Term Exposure Limit LC50: Lethal Concentration, 50% TWA: Time Weighted Average BOD: Biochemical Oxygen Demand COD: Chemical Oxygen Demand TOC: Total Organic Carbon IATA: International Air Transport Association IMDG: International Maritime Dangerous Goods Code LD50: Lethal Dose, 50% TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.</p>
References:	No data available
Disclaimer	The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
Revision information	This document has undergone significant changes and should be reviewed in its entirety.
Prepared by	This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).