

SAFETY DATA SHEET

KLEEN MCT411

1. Identification

Product identifier KLEEN MCT411
Other means of identification Not available.
Recommended use Reverse Osmosis membrane cleaner
Recommended restrictions None known.

Company/undertaking identification

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

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards	Oxidizing solids	Category 3
	Corrosive to metals	Category 1
Health hazards	Acute toxicity, inhalation	Category 4
	Skin corrosion/irritation	Category 1B
	Serious eye damage/eye irritation	Category 1
	Germ cell mutagenicity	Category 2
	Reproductive toxicity	Category 1B
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
OSHA defined hazards	Not classified.	

Label elements



Signal word

Danger

Hazard statement

May intensify fire; oxidizer. May be corrosive to metals. Causes severe skin burns and eye damage. Causes serious eye damage. Harmful if inhaled. May cause respiratory irritation. Suspected of causing genetic defects. May damage fertility or the unborn child.

Precautionary statement

Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat. Keep/Store away from clothing//combustible materials. Take any precaution to avoid mixing with combustibles/. Keep only in original container. Avoid breathing dust/fume. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.

Response	If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. 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. Immediately call a poison center/doctor/. Specific treatment (see on this label). Wash contaminated clothing before reuse. In case of fire: Use to extinguish. Absorb spillage to prevent material damage.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up. Store in corrosive resistant/ container with a resistant inner liner.
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

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Sodium perborate monohydrate		10332-33-9	40 - 60
Sodium tripolyphosphate		7758-29-4	20 - 40
Ethylenediamine tetraacetic acid, tetrasodium salt (EDTA.4Na)		64-02-8	10 - 20
Sodium hydroxide		1310-73-2	2.5 - 10
Tetrasodium pyrophosphate (TSPP)		7722-88-5	1 - 2.5

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

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. Oxygen or artificial respiration if needed. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Wash thoroughly with soap and water for at least 30 minutes. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of low-pressure water for at least 30 minutes while removing contact lenses. Do not rub eyes. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	IF exposed or concerned: Get medical advice/attention. 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).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	May intensify fire; oxidizer.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
Fire-fighting equipment/instructions	Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.
Specific methods	Cool containers exposed to flames with water until well after the fire is out.

General fire hazards May intensify fire; oxidizer.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of dust. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Stop the flow of material, if this is without risk. Absorb spillage to prevent material damage.

Large Spills: Wet down with water and dike for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal.

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

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

7. Handling and storage

Precautions for safe handling Corrosive to skin or eyes. Avoid producing or diffusing dust into the air. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat. Minimize dust generation and accumulation. Take any precaution to avoid mixing with combustibles. Do not get this material in contact with eyes. Do not get this material in contact with skin. Avoid breathing dust. Avoid contact during pregnancy/while nursing. Avoid prolonged exposure. Do not get this material on clothing. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling.

Conditions for safe storage, including any incompatibilities Store below 100°F (38°C) Self-accelerating decomposition can begin at approximately 140F. Store locked up. Keep away from heat. Store in cool, dry location away from acids and alkalis. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Do not store near combustible materials.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	PEL	2 mg/m ³

US. ACGIH Threshold Limit Values

Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m ³

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m ³
Tetrasodium pyrophosphate (TSPP) (CAS 7722-88-5)	TWA	5 mg/m ³

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

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) 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. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Airtight chemical goggles.

Skin protection

Hand protection

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. Glove selection must take into account any solvents and other hazards present.

Other	Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.
Respiratory protection	Chemical respirator with organic vapor cartridge and full facepiece. 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 to off-white
Physical state	Powder
Odor	None
Odor threshold	Not available.
pH in aqueous solution	11 (5% SOL.)
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	P-M(CC)
Evaporation rate	< 1 (Ether = 1)
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	< 1 (Air = 1)
Relative density	Not available.
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	5 %
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	
Percent volatile	0 (Estimated)

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Instability caused by elevated temperatures. Self-accelerating decomposition can begin at approximately 140F.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Store below 100°F (38°C) Avoid contact with strong oxidizers.
Incompatible materials	Avoid contact with strong oxidizers.
Hazardous decomposition products	Oxides of carbon and nitrogen.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Causes digestive tract burns.
Inhalation	Harmful if inhaled.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.

Symptoms related to the physical, chemical and toxicological characteristics Burning pain and severe corrosive skin damage. Causes serious eye damage. May cause respiratory irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Information on toxicological effects

Acute toxicity Harmful if inhaled. May cause respiratory irritation.

Product	Species	Test Results
KLEEN MCT411 (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
<i>Inhalation</i>		
LC50	Rat	2.86 mg/l, 4 Hours, (Calculated according to GHS additivity formula)
<i>Oral</i>		
LD50	Rat	2148 mg/kg, (Calculated according to GHS additivity formula)

Components	Species	Test Results
Ethylenediamine tetraacetic acid, tetrasodium salt (EDTA.4Na) (CAS 64-02-8)		
Acute		
<i>Oral</i>		
LD50	Rat	1658 mg/kg
Sodium hydroxide (CAS 1310-73-2)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	1350 mg/kg
<i>Oral</i>		
LD50	Rabbit	> 500 mg/kg
Sodium tripolyphosphate (CAS 7758-29-4)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg
<i>Oral</i>		
LD50	Rat	4100 mg/kg
Tetrasodium pyrophosphate (TSPP) (CAS 7722-88-5)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 7940 mg/kg
<i>Inhalation</i>		
LC50	Rat	> 1.1 mg/l, 4 Hour
<i>Oral</i>		
LD50	Rat	3770 mg/kg

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

Skin corrosion/irritation Corrosive to skin and eyes. Causes severe skin burns and eye damage.

Serious eye damage/eye irritation Corrosive to eyes. Causes serious eye damage.

Respiratory or skin sensitization	
Respiratory sensitization	Not available.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	Suspected of causing genetic defects.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not available.
Aspiration hazard	Not classified. Aspiration of this product may cause the same corrosiveness/irritation impacts as if it were ingested.
Chronic effects	Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Product		Species	Test Results	
KLEEN MCT411 (CAS Mixture)	0% Mortality	Fathead Minnow	50 mg/L, Acute Toxicity, 96 hour, (Estimated)	
	LC50	Fathead Minnow	105 mg/L, Acute Toxicity, 96 hour, (Estimated)	
	Crustacea	0% Mortality	Daphnia magna	18 mg/L, Acute Toxicity, 48 hour, (Estimated)
		LC50	Daphnia magna	25 mg/L, Acute Toxicity, 48 hour, (Estimated)

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

Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.
Environmental fate	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Persistence and degradability	No data is available on the degradability of this product.
- COD (mgO2/g)	97 (calculated data)
- BOD 5 (mgO2/g)	1 (calculated data)
- BOD 28 (mgO2/g)	2 (calculated data)
- Closed Bottle Test (% Degradation in 28 days)	10
- Zahn-Wellens Test (% Degradation in 28 days)	3
- TOC (mg C/g)	40 (calculated data)

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. If discarded, this product is considered a RCRA ignitable waste, D001. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.

Hazardous waste code	D001: Waste Flammable material with a flash point <140 F D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel] 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).
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

UN number	UN3085
UN proper shipping name	OXIDIZING SOLID, CORROSIVE, N.O.S. (Sodium perborate monohydrate, Sodium hydroxide RQ = 31546 LBS)
Transport hazard class(es)	
Class	5.1
Subsidiary risk	8
Packing group	III
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
ERG number	140

Some containers may be DOT exempt, please check BOL for exact container classification.

IATA

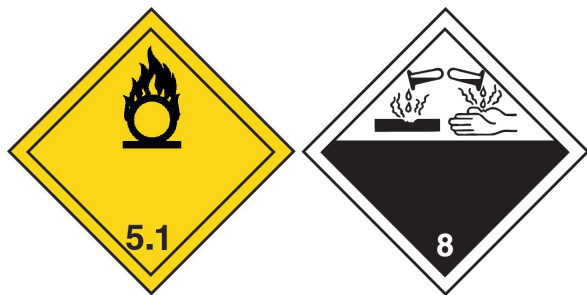
UN number	UN3085
UN proper shipping name	OXIDIZING SOLID, CORROSIVE, N.O.S. (Sodium perborate monohydrate, Sodium hydroxide)
Transport hazard class(es)	
Class	5.1
Subsidiary risk	8
Packing group	III
Environmental hazards	No.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN3085
UN proper shipping name	OXIDIZING SOLID, CORROSIVE, N.O.S. (Sodium perborate monohydrate, Sodium hydroxide)
Transport hazard class(es)	
Class	5.1
Subsidiary risk	8
Packing group	III
Environmental hazards	
Marine pollutant	No.
EmS	Not available.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

DOT





15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Sodium hydroxide (CAS 1310-73-2) Listed.

Sodium tripolyphosphate (CAS 7758-29-4) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

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

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical

No

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.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)

Hazardous substance

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).

Food and drug administration

The ingredients in this product are affirmed as GRAS (Generally Recognized as Safe) for use in membrane applications.

US state regulations

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 - Massachusetts RTK - Substance List

Sodium hydroxide (CAS 1310-73-2)
Sodium tripolyphosphate (CAS 7758-29-4)
Tetrasodium pyrophosphate (TSPP) (CAS 7722-88-5)

US - Pennsylvania RTK - Hazardous Substances

Sodium hydroxide (CAS 1310-73-2)
Sodium tripolyphosphate (CAS 7758-29-4)
Tetrasodium pyrophosphate (TSPP) (CAS 7722-88-5)

US - Rhode Island RTK

Sodium hydroxide (CAS 1310-73-2)
Sodium tripolyphosphate (CAS 7758-29-4)

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 regulated.

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 Nov-04-2014

Revision date Nov-04-2014

Version # 1.0

List of abbreviations
CAS: Chemical Abstract Service Registration Number
TWA: Time Weighted Average
STEL: Short Term Exposure Limit
LD50: Lethal Dose, 50%
LC50: Lethal Concentration, 50%
NOEL: No Observed Effect Level
COD: Chemical Oxygen Demand
BOD: Biochemical Oxygen Demand
TOC: Total Organic Carbon
TLV: Threshold Limit Value
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods Code
NFPA: National Fire Protection Association
ACGIH: American Conference of Governmental Industrial Hygienists
TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.

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
Composition / Information on Ingredients: Disclosure Overrides
Physical & Chemical Properties: Multiple Properties
Toxicological Information: Toxicological Data
Transport Information: Material Transportation Information
Regulatory Information: Risk Phrases - Classification
Material Attributes & Uses; Experimental Data: Experimental Data
HazReg Data: International Inventories
GHS: Classification

Prepared by

This SDS has been prepared by GE Water & Process Technologies Regulatory Department
(1-215-355-3300).