

CHEMICAL EQUIPMENT LABS, INC
Steam Treat F
Safety Data Sheet (SDS)

Section 1: Identification of the substance/mixture and of the company/undertaking

PRODUCT IDENTIFIER

Product name: Steam Treat F
Product form: Mixture

Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/corrosion protection/condensate systems

Details of the supplier of the safety data sheet

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EMERGENCY TELEPHONE NUMBER

CHEMTREC (800) 424-9300

Section 2: HAZARD(S) IDENTIFICATION

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Flam. Liq.	: 3 – Flammable liquids
Acute tox.	: 3 (dermal) – Acute toxicity
Acute tox.	: 4 (oral) – Acute toxicity
Acute tox	: 3 (inhalation – vapor) – Acute toxicity
Skin corr./Irrit	: 1A – skin corrosion/irritation
Eye dam./Irrit	: 1 – serious eye damage/eye irritation

Label elements

Signal word : Danger

Hazard Statement:

H226	: Flammable liquid and vapor.
H311	: Toxic in contact with skin.
H331	: Toxic if inhaled.

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H302	: Harmful to swallow.
H314	: Causes severe skin burns and eye damage.
H402	: Harmful to aquatic life.
 Precautionary Statements (Prevention):	
P280	: Wear protective gloves/protective clothing/eye protection/face protection.
P271	: Use only outdoors or in a well-ventilated area.
P261	: Avoid breathing vapors.
P210	: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	: Do not breathe mist or vapors.
P260	: Do not breathe dust or mist.
P243	: Take precautionary measures against static discharge.
P273	: Avoid release to the environment.
P241	: Use explosion-proof electrical/ventilating/lighting/equipment.
P264	: Wash with plenty of water and soap thoroughly after handling.
P270	: Do not eat, drink or smoke when using this product.
P242	: Use only non-sparking tools.
P240	: Ground/bond container and receiving equipment.
 Precautionary Statements (Response):	
P310	: Immediately call a POISON CENTER or doctor/physician.
P305, P351, P338	: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304, P340	: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303, P361, P353	: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Wash with soap and drench with water.
P361, P364	: Remove/take off immediately all contaminated clothing and wash before reuse.
P301, P330, P331	: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P370, P378	: In case of fire: Use water spray, dry powder, foam or carbon dioxide for extinction.
 Precautionary Statements (Storage):	
P403, P235	: Store in a well ventilated place. Keep cool.
P233	: Keep container tightly closed.
P405	: Store locked up.
 Precautionary Statements (Disposal):	
P501	: Dispose of contents/container to hazardous or special waste collection point.

Hazards not otherwise classified

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If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Emergency Overview.

DANGER.
CORROSIVE.
FLAMMABLE LIQUID.
HARMFUL IF SWALLOWED.
HARMFUL IF ABSORBED THROUGH SKIN.
HARMFUL IF INHALED
Corrosive to the skin, eyes and respiratory system.
CAUSE SEVERE BURNS.
RISK OF SERIOUS DAMAGE TO EYES.
INGESTION MAY CAUSE GASTRIC DISTURBANCES,
Avoid contact with skin, eyes and clothing
Use with local exhaust ventilation.
Avoid inhalation of mist/vapors.
Wear a NIOSH-certified chemical goggles.
Wear protective clothing.
Eye wash fountains and safety showers must be easily accessible.
Wear chemical resistant protective gloves.
Wear full face shield if splashing hazard exists.

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

Mixture

NAME	PRODUCT IDENTIFER	%
Morpholine	(CAS No) 110-91-81	Proprietary
Water	(CAS No) 7732-18-5	Proprietary

Section 4: FIRST-AID MEASURES

Description of first aid measures

General advice : Remove contaminated clothing.
First aid measures after inhalation : Removed the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.
First- aid measures after skin contact : Wash affected areas thoroughly with soap and water. Immediate medical attention required.

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First-aid measures after eye contact : In case of contact with the eyes, rinse immediately for 15 minutes with plenty of water. Immediate medical attention required.

First-aid measures after ingestion : Do not induce vomiting. Rinse mouth and then drink plenty of water. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

Most important symptoms and effects, both acute and delayed

Symptoms : Overexposure may cause; nausea, diarrhea, coughing, headache.

Section 5: FIRE FIGHTING MEASURES

Extinguishing media : Water spray, foam, dry powder, or carbon dioxide

Unusual fire and explosion hazards : Substance/product is dangerous when exposed to heat or flames. If product is heated above decomposition temperature, toxic vapors will be released.

Protective equipment for firefighters : Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information : If exposed to fire, keep containers cool by spraying with water. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems.

Impact sensitivity : Base on the chemical structure there is no shock-sensitivity.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions : Wear appropriate respiratory protection. Use personal protective clothing. Ensure adequate ventilation.

Environmental precautions : Substance/product is RCRA hazardous due to its properties.

Methods for cleaning up : Spills should be contained, solidified, and placed in suitable containers for disposal.

Section 7: HANDLING AND STORAGE

Handling

Keep away from sources of ignition- No smoking. Take precautionary measures against static discharges. Ensure thoroughly ventilation of stores and work areas.

Protection against fire and explosion : Prevent electrostatic charge – sources of ignition should be kept well clear – fire extinguishers should be kept handy.

Conditions for safe storage, including any incompatibilities

Segregate from acids and acid foaming substances.

Suitable materials for containers : Carbon steel (iron), Stainless steel 1.4301 (V2), Stainless steel 1.4541, Stainless steel 1.4401, stainless steel 1.4571, Low density polyethylene (LDPE), High density polyethylene (HDPE), Glass.

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Further information on storage conditions : Containers should be stored tightly sealed in a dry place. Avoid extreme heat. Keep container tightly closed. Keep away from sources of ignition – no smoking.

Storage duration : 24 months
From the data on storage duration in this safety data sheet no agreed statement regarding the warrantee of application properties can be deduced.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

No occupational exposure limits known.

Advice on systems designs:

Provide local exhaust ventilation to control vapors/mist

Personal protective equipment

Hand protection : Chemical resistant protective gloves.

Eye protection : Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Skin and body protection : Body protection must be chosen depending on activity and possible exposure, e.g. apron, protective boots, chemical-protection suit (according to EN 14605 in case of splashed or EN ISO 13982 in case of dust) Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

Respiratory protection : Wear a NIOSH-certified (or equivalent) organic vapor/particulate respirator. Do not exceed the maximum use concentration of the respirator face piece/cartridge combination. For emergency non-routine, high exposure situations, use a NIOSH-certified full face piece pressure demand self-contained breathing apparatus (SCBA) or a full face piece pressure demand supplied-air respirator (SAR) with escape provisions.

General safety and hygiene measures : Eye wash fountains and safety showers must be easily accessible. Wear protective clothing as necessary to prevent contact. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. Store work clothing separately.

Airborne exposure limits (ml/m³ = ppm)
No specific occupational exposure limit has been established.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Form : liquid.
Odor : amine-like.
Odor threshold : not determined since toxic by inhalation.

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Color	: colorless to yellow
pH value	: 10.1 (5 g/l)
Melting point	: -5 °C
Boiling Point	: 128 - 130° C
Flash point	: 32°C (DIN 51755)
Flammability	: Flammable
Lower explosion limit	: For liquids not relevant for classification and labelling. The lower explosion point may be 5 - 15°C below the flash point.
Upper explosion limit	: For liquids not relevant for classification and labelling.
Auto ignition	: 255 °C (DIN 51794)
Vapor pressure	: 10 mbar (20°C)
Density	: 1.00 g/cm ³ (20°C)
Relative density	: 1.0007 (20°C) Literature data.
Partitioning coefficient noctanol/water (low Pow)	: -2.55 (25°C)
Self-ignition temperature	: non self-igniting
Thermal decomposition	: 390°C, 500 kJ/kg (DSC (DIN 51007)) Thermal decomposition above the indicated temperature is possible.
Viscosity, dynamic	: 2.23 mPa.s (20°C) literature data.
Particle size	: The substance/product is marketed or used in a non-solid or granular form.
% volatiles	: 0.00%
Solubility in water	: (20°C) miscible.
Solubility (qualitative)	: miscible. Solvent(s): organic solvents
Molar mass	: 87.12 g/mol
Evaporation rate	: Value can be approximated from Henry's Law Constant or vapor pressure.

Section 10: STABILITY AND REACTIVITY

Reactivity

Corrosion to metals	: no corrosive effect on metals
Oxidizing properties	: Based on its structural properties the products is not classified as oxidizing.
Formation of flammable gases	: Forms no flammable gases in the presence of water.

Chemical stability

Possibility of hazardous reactions	: This product is chemically stable. Reacts with oxidizing agents.
Conditions to avoid	: Avoid all sources of ignition: heat, sparks, and open flame.
Incompatible materials	: Oxidizing agents, mineral acids.
Hazardous decomposition products	: Thermal decomposition: 390°C (DSC (DIN 51007)) Thermal decomposition are above the indicated temperature is possible

Section 11: TOXICOLOGICAL INFORMATION

Primary routes of exposure

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Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute toxicity/Effects

Acute toxicity	: Assessment of acute toxicity: Of moderate toxicity after short-term inhalation. Of moderate toxicity after single ingestion. Of pronounced toxicity after short-term skin contact.
Oral	: Type of value: LD50 Species: Rat Value: Approx. 1,910 mg/kg (BASF-Test)
Inhalation	: Type of value LC50 Species: Rat Value: 8 mg/l conservative approach
Dermal	: Type of value: LD50 Species: Rabbit Value: Approx. 500 mg/kg Literature data.
Assessments other acute effects	: Assessment of STOT single: Based on the available information there is no specific target organ toxicity to be expected after single exposure.
Irritation/Corrosion	: Assessment of irritating effects: Highly corrosive! Damages skin and eyes. Irritating to eyes and skin.
Eye irritation	: Species: rabbit Result: Risk of serious eye damage. Method: BASF-Test / Species: Rabbit Result: Risk of serious eye damage. Method: OECD Guideline 405.
Sensitization	: Assessment of sensitization: Study scientifically not justified.
Aspiration hazard	: No aspiration hazard expected.

Chronic toxicity/Effects.

Repeat dose toxicity	: Assessment of repeated dose toxicity: The substance may cause damage to the lung after repeated inhalation. May affect the liver and kidneys as indicated in animal studies. After repeated exposure the prominent effect is local irritation.
Genetic toxicity	: Assessment of mutagenicity: In the majority of the tests performed (bacteria/microorganisms/cell cultures) a mutagenic effect was no found. A mutagenic effect was also not observed in in-vivo assays.
Carcinogenicity	: Assessment of carcinogenicity: Results from a number of long-term carcinogenetic studies and short-term test are available. Taking into account all of the information, there is no indication that the substance itself is carcinogenic. IARC Group 3 (not classifiable as to human carcinogenicity). Under certain conditions the substance can form nitrosamines, Nitrosamines are carcinogenic in animal studies. In long-term studies in rats and mice in which the substance was given by inhalation, a carcinogenic effect was not observed.

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Reproductive toxicity : Assessment of reproduction toxicity: Study does not need to be conducted.

Teratogenicity : Assessment of teratogenicity: No indications of a developmental toxic/teratogenic effect were seen in animal studies. The product has not been fully tested. The statements have been derived in parts from the products of a similar structure or composition.

Symptoms of Exposure

Overexposure may cause: Nausea, diarrhea, coughing, headache.

Medical conditions aggravated by overexposure

Data available do not indicate that there are medical conditions that are generally recognized as being aggravated by exposure to this substance/product/ See SDS section 11 – Toxicological information.

Section 12: ECOLOGICAL INFORMATION

Toxicity

Aquatic toxicity : Acutely harmful for aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Invertebrates : EC50 (48 h) 45 mg/l, *Daphnia magna* (OECD Guideline 202, part 1, static) Literature data.

Fish : LC50 (96 h) 180 mg/l, *Salmo gairdneri*, syn. *O. mykiss* (fish test acute, static). The details of the toxic effect related to the nominal concentration. The study was carried out in soft water. Literature data.
: LC50 (96 h) 380 mg/l *Salmo gairdneri*, syn. *O. mykiss* (fish test acute, static). The details of the toxic effect related to the nominal concentration. The study was carried out in soft water. Literature data.

Aquatic plants : EC50 (96 h) 28 mg/l, *Pseudokirchneriella subcapitata* (growth Inhibition Test). The statement of the toxic effect relates to the analytically determined concentration. Literature data.
: EC50 (96 h) 10 28 mg/l, *Pseudokirchneriella subcapitata* (growth Inhibition Test). The statement of the toxic effect relates to the analytically determined concentration. Literature data.

Chronic toxicity to fish : Study scientifically not justified.

Chronic toxicity to aquatic invertebrates : No observed effect concentration (21 d) 5 mg/l, *Daphnia magna* (OECD Guideline 211, semistatic)

Assessment of terrestrial toxicity : No toxic effects have been observed in studies with terrestrial plants.

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Microorganisms/Effects on activated sludge

Toxicity to microorganisms : OECD Guideline 209 activated sludge, domestic/EC20 930 min): > 1,000 mg/l. The details of the toxic effect related to the nominal concentration. Literature data
OECD Guideline 209 activated sludge, industrial/EC20 (0.5 h): > 1,000 mg/l. The details of the toxic effect relate to nominal concentration.
DIN EN ISO 8192 activated sludge, industrial/EC30 (30 h): < 1,000 mg/l

Persistence and degradability

Assessment biodegradation and elimination (H2O) : Readily biodegradable (according to OECD criteria).
Elimination information : 90-100 % DOC reduction (25 d) (OECD 301E/92/69/EEC, C.4-B) (aerobic, municipal sewage treatment plant effluent)
Assessment of the stability in water : According to structural properties, hydrolysis is not expected/probable.
Assessment bio accumulative potential : Accumulation in organisms is not to be expected.
Bio accumulative potential : Bio concentration factor: < 2.8 (48 d), Cyprinus carpio (OECD Guideline 305 C)

Mobility in soil

Assessment transport between environmental Compartments : The substance will not evaporate into the atmosphere from the water surface. Absorption to solid soil phase is not expected. The data refers to the dissociated form of the substance.

Additional information

The product contains : The heavy-metal content in the product is below the limit values laid down in normative EN 71 Part III.

Section 13: DISPOSAL CONSIDERATIONS

Waste disposal of substance : Dispose of in a RCRA-licensed facility. Do not discharge into waterways or sewer system without proper authorization. Dispose of in accordance with national, state and local regulations.

Container disposal : Dispose of in a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of containers. If containers are not empty, they must be disposed of in a RCRA-licensed facility.

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RCRA

: D001

Section 14: TRASPORT INFORMATION

The data provided in the section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

Land transport

US DOT

Proper shipping name : Morpholine
Hazard class : 8
Hazard label : 8, 3
Identification number : UN2054
Packing group : I
Transport label : Corrosive

Sea transport

IMDG

Proper shipping name : Morpholine
Hazard class : 8
Hazard label : 8, 3
Marine pollutant : No
Identification number : UN2054
Packing group : I
Transport label : Corrosive

Air transport

IATA/ICAO

Proper shipping name : Morpholine
Hazard class : 8
Packing group : I
Identification number : UN2054
Hazard label : 8, 3

Section 15: REGULATORY INFORMATION

Federal Regulations

Registration status : Chemical TSCA, US Released/listed

EPCRA 311/312 (Hazardous categories) : Acute; Chronic; Fire

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CERCLA RQ	CAS Number	Chemical Name
5000 lbs	107-15-3	Ethylenediamine
100 lbs	100-74-3; 110-91-8	4-ethylmorpholine; morpholine

State Regulations

State RTK	CAS Number	Chemical Name
PA	109-86-4	2-methoxyethanol
MA	109-86-4	2-methoxyethanol
NJ	110-91-8	morpholine

CA Prop. 65

WARNING: THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

NFPA hazard codes

	Health	Fire	Reactivity
Suggested NFPA Rating	3	3	0
Suggested HMIS Rating	3	3	0

Assessment of the hazard classes according to UN GHS criteria (most recent version)

Aquatic acute	: 3 – hazardous to the aquatic environment – acute
Flam. Liq.	: 3 – Flammable liquids
Acute tox.	: 3 (dermal) – Acute toxicity
Acute tox.	: 4 (oral) – Acute toxicity
Acute tox	: 3 (inhalation – vapor) – Acute toxicity
Skin corr./Irrit	: 1A – skin corrosion/irritation
Eye dam./Irrit	: 1 – serious eye damage/eye irritation

Section 16: OTHER INFORMATION

Indication of changes	: Revision 2.0
Revision date	: September 15, 2016
Other information	: ERM

NOTE TO EMPLOYER

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This Safety Data Sheet contains environmental, health and toxicology information for your employees. Please ensure this information is provided to them. It also contains information to help you meet community right-to-know/emergency response reporting requirements under SARA Title III and many other laws. If you resell this product, this SDS must be given to the buyer or the information incorporated in you SDS. Discard any previous edition of this SDS.

DISCLAIMER

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End of Safety Data Sheet