

Safety Data Sheet

acc. to OSHA HCS

Printing date 07/24/2024

Reviewed on 07/24/2024

1 Identification

- **Product identifier**
- **Trade name:**
- **Article number:** 2897
- **Application of the substance / the mixture** Water treatment
- **Uses advised against**
Processes involving extreme heat use advised against.
Processes where workers who may be pregnant or breastfeeding could potentially come into direct contact with the undiluted product.
Any use carrying a risk of direct contact with eyes/skin where workers are exposed without adequate personal protective equipment (PPE).
Any use involving aerosol formation or vapour release in excess of the assigned WEL where workers are exposed without suitable Respiratory Protective Equipment.
Processes involving the use of incompatible substances - refer to section 10.
The product is intended exclusively for industrial and professional use.
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**

- **Information department:** Product safety department.
- **Emergency telephone number:**
The American Association of Poison Control Centers (24-hour hotline): 1-800-222-1222

2 Hazard(s) identification

- **Classification of the substance or mixture**
Acute Toxicity - Oral 4 H302 Harmful if swallowed.
Acute Toxicity - Dermal 3 H311 Toxic in contact with skin.
Skin Corrosion 1B H314 Causes severe skin burns and eye damage.
Eye Damage 1 H318 Causes serious eye damage.
Toxic to Reproduction 2 H361 Suspected of damaging fertility or the unborn child.

- **Label elements**
- **Hazard pictograms**



GHS05 GHS06 GHS08

- **Signal word** Danger
- **Hazard-determining components of labeling:**
Morpholine
Cyclohexylamine
2-diethylaminoethanol
- **Hazard statements**
H302 Harmful if swallowed.
H311 Toxic in contact with skin.
H314 Causes severe skin burns and eye damage.
H361 Suspected of damaging fertility or the unborn child.

- **Precautionary statements**
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust.
P270 Do not eat, drink or smoke when using this product.

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P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P302+P352 If on skin: Wash with plenty of water.
 P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 3
 Fire = 2
 Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = *3
 Fire = 2
 Reactivity = 0

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

532-32-1	Benzoic acid, sodium salt	50 – 100%
100-37-8	2-diethylaminoethanol	10 – 25%
108-91-8	Cyclohexylamine	10 – 25%
110-91-8	Morpholine	10 – 25%

4 First-aid measures

· **Description of first aid measures**

· **General information:**

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation:** Supply fresh air; consult doctor in case of complaints.

· **After skin contact:**

Immediately rinse with water.

If skin irritation continues, consult a doctor.

· **After eye contact:**

Check for and remove any contact lenses.

Rinse opened eye for several minutes under running water. Then consult a doctor.

· **After swallowing:**

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; call for medical help immediately.

If vomiting occurs spontaneously, keep head below hips to prevent aspiration.

· **Information for doctor:** Treat symptomatically and supportively.

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

· **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

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5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Use fire fighting measures that suit the environment.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture**
Corrosive.
During heating or in case of fire poisonous gases are produced.
Solid product. Product will melt and combustion may occur when exposed to fire conditions.
- **Advice for firefighters**
- **Protective equipment:**
Do not inhale explosion gases or combustion gases.
Wear self-contained respiratory protective device.
Wear fully protective suit.
- **Additional information**
Cool endangered receptacles with water spray.
Collect contaminated fire fighting water separately. It must not enter the sewage system.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Keep ignition sources away - no smoking.
- **Environmental precautions:**
Do not allow to penetrate the ground/soil.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Pick up mechanically.
Send for recovery or disposal in suitable receptacles.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

· PAC-1:

532-32-1	Benzoic acid, sodium salt	61 mg/m ³
100-37-8	2-diethylaminoethanol	6 ppm
108-91-8	Cyclohexylamine	1.8 ppm
110-91-8	Morpholine	30 ppm

· PAC-2:

532-32-1	Benzoic acid, sodium salt	140 mg/m ³
100-37-8	2-diethylaminoethanol	83 ppm
108-91-8	Cyclohexylamine	8.6 ppm
110-91-8	Morpholine	1,300 ppm

· PAC-3:

532-32-1	Benzoic acid, sodium salt	830 mg/m ³
100-37-8	2-diethylaminoethanol	500 ppm
108-91-8	Cyclohexylamine	30 ppm
110-91-8	Morpholine	8000** ppm

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7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of dust.
Avoid direct contact (skin/eye contact, ingestion and/or inhalation of fume/mist/dust) with the product in the undiluted form.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
Prevent any seepage into the ground.
Do not store in aluminium, copper, zinc containers.
- **Information about storage in one common storage facility:**
Store away from oxidizing agents.
Store away from foodstuffs.
- **Further information about storage conditions:**
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
Store in a bunded area.
- **Storage class:** 6.1 A
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see section 7.
- **Control parameters**

· Components with limit values that require monitoring at the workplace:

532-32-1 Benzoic acid, sodium salt

TLV Long-term value: 2.5 mg/m³
inh. fraction, Skin, A5

100-37-8 2-diethylaminoethanol

PEL Long-term value: 50 mg/m³, 10 ppm
Skin
REL Long-term value: 50 mg/m³, 10 ppm
Skin
TLV Long-term value: 2 ppm
Skin

108-91-8 Cyclohexylamine

REL Long-term value: 40 mg/m³, 10 ppm
TLV Long-term value: 10 ppm
A4

110-91-8 Morpholine

PEL Long-term value: 70 mg/m³, 20 ppm
Skin
REL Short-term value: 105 mg/m³, 30 ppm
Long-term value: 70 mg/m³, 20 ppm
Skin
TLV Long-term value: 20 ppm
Skin, A4

- **Additional information:** The lists that were valid during the creation were used as basis.

· Exposure controls

· Personal protective equipment:

Select PPE appropriate for the operations taking place taking into account the product properties.

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· General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Do not inhale gases / fumes / aerosols.

Avoid contact with the eyes and skin.

Do not inhale dust / smoke / mist.

Do not eat, drink, smoke or sniff while working.

Pregnant women should strictly avoid inhalation or skin contact.

A safe system of work must be formulated and followed to ensure that workers who may be pregnant or breastfeeding do not come into direct contact with the product.

Take note of assigned Workplace Exposure Limits.

· Breathing equipment:

Use suitable respiratory protective device in case of insufficient ventilation.

Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

· Protection of hands:



Protective gloves.

Use gloves tested and approved under appropriate government standards such as NIOSH (US) or EN374 (EU).

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Tightly sealed goggles conforming to EN166.

· Body protection:



Impervious protective clothing

Body protection must be chosen depending on product properties, activity and possible exposure.

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form: Solid

Color: White

· **Odor:** Amine-like

· **Odor threshold:** Not determined.

· **pH-value at 20 °C (68 °F):** 11 (4%)

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· Change in condition Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
· Flash point:	>93 °C (>199.4 °F)
· Flammability (solid, gaseous):	Not applicable.
· Decomposition temperature:	Not determined.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits: Lower:	Not determined.
Upper:	Not determined.
· Vapor pressure:	Not applicable.
· Density:	Not determined.
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water:	Fully miscible.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity: Dynamic:	Not determined.
Kinematic:	Not determined.
· Other information	NOTE: The physical data presented above are typical values and should not be construed as a specification.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
To avoid thermal decomposition do not overheat.
- **Possibility of hazardous reactions**
The product is a strong base, it reacts violently with acid and is corrosive. Reacts violently with strong oxidants causing fire hazard.
Reaction with nitrosating agents (e.g. nitrites, nitrous acid, nitrous gases) can release carcinogenic nitrosamines.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**
Strong acids and oxidising agents
Substances specifically listed in section 10.3 as incompatible.
- **Hazardous decomposition products:**
Nitrogen oxides (NO_x)
Carbon monoxide and carbon dioxide

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11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

ATE (Acute Toxicity Estimate)

Oral	LD50	590.81 mg/kg (rat)
Dermal	LD50	985.27 mg/kg
Inhalative	LC50/4 h	10 mg/l

532-32-1 Benzoic acid, sodium salt

Oral	LD50	> 2,000 mg/kg (rat)
Dermal	LD50	> 2,000 mg/kg (rabbit)

100-37-8 2-diethylaminoethanol

Oral	LD50	1,320 mg/kg (rat)
Dermal	LD50	885 mg/kg (Guinea pig)

108-91-8 Cyclohexylamine

Oral	LD50	100 mg/kg /ATE (rat)
Dermal	LD50	275 mg/kg /ATE (rat)

110-91-8 Morpholine

Oral	LD50	1,900 mg/kg (rat)
Dermal	LD50	500 mg/kg (rabbit)

- **Primary irritant effect:**
- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:**
No sensitizing effects known.
Based on available data, the classification criteria are not met.
- **Additional toxicological information:**
ROUTES OF EXPOSURE: The component substances can variously be absorbed into the body by inhalation, through the skin and by ingestion.

EFFECTS OF SHORT-TERM EXPOSURE: The product is corrosive to the eyes, the skin and the respiratory tract. Corrosive on ingestion. May cause effects on the central nervous system.

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of oesophagus and stomach.

Inhalation may cause lung oedema, but only after initial corrosive effects on eyes and/or airways have become manifest. The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Immediate administration of an appropriate inhalation therapy by a doctor or a person authorized by him/her, should be considered.

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

110-91-8	Morpholine	3
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- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Suspected of damaging fertility or the unborn child.
- **Specific target organ toxicity - single exposure**
Based on available data, the classification criteria are not met.

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- **Specific target organ toxicity - repeated exposure**
Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

12 Ecological information

· Toxicity

· Aquatic toxicity:

532-32-1 Benzoic acid, sodium salt

EC50 (96 h) > 100 mg/l (Bacteria)

100-37-8 2-diethylaminoethanol

EC50 (96 h) 147 mg/l (Fish)

EC50 (48 h) 165 mg/l (Daphnia)

110-91-8 Morpholine

EC50 (72 h) 64.6 mg/l (Algae)

- **Persistence and degradability** The organic portion of the product is biodegradable.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** Product is not expected to bioaccumulate.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

· Waste treatment methods

· Recommendation:

Recommended Hierarchy of Controls:

- Minimize waste;
- Reuse if not contaminated;
- Recycle, if possible; or
- Safe disposal (if all else fails).

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Contact waste processors for recycling information.

· Uncleaned packagings:

· Recommendation:

Disposal must be made according to official regulations.

Container remains hazardous when empty. Continue to observe all precautions.

Containers, even those that are "empty," may contain residues that can develop flammable and/or hazardous vapours upon heating. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers.

- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· UN-Number

· DOT, ADR/RID/ADN, IMDG, IATA

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· **UN proper shipping name**
 · **DOT** Corrosive solids, toxic, n.o.s. (Morpholine, Cyclohexylamine)
 · **ADR/RID/ADN** UN2923 CORROSIVE SOLID, TOXIC, N.O.S. (MORPHOLINE, CYCLOHEXYLAMINE)
 · **IMDG, IATA** CORROSIVE SOLID, TOXIC, N.O.S. (MORPHOLINE, CYCLOHEXYLAMINE)

· **Transport hazard class(es)**

· **DOT**



· **Class** 8 Corrosive substances
 · **Label** 8, 6.1

· **ADR/RID/ADN**



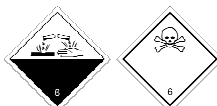
· **Class** 8 (CT2) Corrosive substances
 · **Label** 8+6.1

· **IMDG**



· **Class** 8 Corrosive substances
 · **Label** 8/6.1

· **IATA**



· **Class** 8 Corrosive substances
 · **Label** 8 (6.1)

· **Packing group**

· **DOT, ADR/RID/ADN, IMDG, IATA** II

· **Environmental hazards:** Not applicable.

· **Special precautions for user** Warning: Corrosive substances
 · **Hazard identification number (Kemler code):** 86
 · **EMS Number:** F-A,S-B
 · **Stowage Category** B
 · **Stowage Code** SW2 Clear of living quarters.

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

· **Transport/Additional information:**

· **ADR/RID/ADN**
 · **Excepted quantities (EQ)** Code: E2
 Maximum net quantity per inner packaging: 30 g
 Maximum net quantity per outer packaging: 500 g

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· IMDG	
· Limited quantities (LQ)	1 kg
· Excepted quantities (EQ)	Code: E2
	Maximum net quantity per inner packaging: 30 g
	Maximum net quantity per outer packaging: 500 g
· UN "Model Regulation":	UN 2923 CORROSIVE SOLID, TOXIC, N.O.S. (MORPHOLINE, CYCLOHEXYLAMINE), 8 (6.1), II

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

· Section 355 (extremely hazardous substances):

108-91-8 Cyclohexylamine

· Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

· TSCA (Toxic Substances Control Act):

All ingredients are listed as ACTIVE.

· Hazardous Air Pollutants

None of the ingredients is listed.

· Proposition 65

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· TLV (Threshold Limit Value)

108-91-8 Cyclohexylamine

A4

110-91-8 Morpholine

A4

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms



GHS05 GHS06 GHS08

· Signal word Danger

· Hazard-determining components of labeling:

Morpholine

Cyclohexylamine

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2-diethylaminoethanol

· Hazard statements

H302 Harmful if swallowed.

H311 Toxic in contact with skin.

H314 Causes severe skin burns and eye damage.

H361 Suspected of damaging fertility or the unborn child.

· Precautionary statements

P202 Do not handle until all safety precautions have been read and understood.

P260 Do not breathe dust.

P270 Do not eat, drink or smoke when using this product.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P302+P352 If on skin: Wash with plenty of water.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

· National regulations:

· Information about limitation of use:

Class	Share in %
NK	15.0

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: Product safety department.

· Contact:

· Date of preparation / last revision 07/24/2024 / 2

· Abbreviations and acronyms:

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Acute Toxicity - Oral 4: Acute toxicity – Category 4

Acute Toxicity - Dermal 3: Acute toxicity – Category 3

Skin Corrosion 1B: Skin corrosion/irritation – Category 1B

Eye Damage 1: Serious eye damage/eye irritation – Category 1

Toxic to Reproduction 2: Reproductive toxicity – Category 2

· * Data compared to the previous version altered.

US