

SECTION 1: Identification of the substance/mixture and of the company/undertaking**· 1.1 Product identifier**

· **Trade name:** Choline hydroxide, 45 % in water EDA-grade

· **CAS Number:**

123-41-1

· **EC number:**

204-625-1

· **Registration number:** 01-2119976381-32-0001

· 1.2 Relevant identified uses of the substance or mixture and uses advised against**· Sector of Use**

SU2a Mining, (without offshore industries)

SU2b Offshore industries

SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites

SU9 Manufacture of fine chemicals

SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

SU24 Scientific research and development

· Product category

PC14 Metal surface treatment products, including galvanic and electroplating products

PC15 Non-metal-surface treatment products

PC19 Intermediate

PC20 Products such as ph-regulators, flocculants, precipitants, neutralization agents

PC21 Laboratory chemicals

PC27 Plant protection products

PC29 Pharmaceuticals

PC35 Washing and cleaning products (including solvent based products)

PC38 Welding and soldering products (with flux coatings or flux cores.), flux products

· Process category

PROC1 Use in closed process, no likelihood of exposure

PROC2 Use in closed, continuous process with occasional controlled exposure

PROC3 Use in closed batch process (synthesis or formulation)

PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises

PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC13 Treatment of articles by dipping and pouring

PROC15 Use as laboratory reagent

· Environmental release category

ERC1 Manufacture of substances

ERC2 Formulation of preparations

ERC4 Industrial use of processing aids in processes and products, not becoming part of articles

ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)

ERC7 Industrial use of substances in closed systems

· 1.3 Details of the supplier of the safety data sheet**· Manufacturer/Supplier:**

Balchem Corporation

52 Sunrise Park Road

New Hampton, NY 10958

USA

Tel.: +1 845-326-5600

Fax: +1 845-326-5717

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Balchem Italia Srl
Via del Porto, snc
28040 Marano Ticino (NO) - Italy
Tel.: 0039-(0)3219791

Email: sds@balchem.com

- **1.4 Emergency telephone number:**
CHEMTREC:
800-4249300 (USA)
+1 7035273887 (International)

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**
Skin Corr. 1A H314 Causes severe skin burns and eye damage.
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
C; Corrosive
R35: Causes severe burns.
- **Information concerning particular hazards for human and environment:** Void
- **Additional information:** Contains Ethylendiamine (EDA). May produce an allergic reaction.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**
The substance is classified and labelled according to the CLP regulation.
- **Hazard pictograms**



GHS05

- **Signal word** Danger
- **Hazard statements**
H314 Causes severe skin burns and eye damage.
- **Precautionary statements**
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor/...
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- **2.3 Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** No
- **vPvB:** No

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


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SECTION 3: Composition/information on ingredients

- **3.1 Chemical characterization: Substances**
- **CAS No. Description**
123-41-1 Ethanaminium, 2-hydroxy-N,N,N-trimethyl-, hydroxide
- **Identification number(s)**
- **EC number: 204-625-1**

· **Impurities and stabilising additives:**CAS: 7732-18-5
EINECS: 231-791-2

water, distilled, conductivity or of similar purity

CAS: 107-15-3
EINECS: 203-468-6
Index number: 612-006-00-6ethylenediamine
 C R34;  Xn R21/22;  Xn R42/43
R10 Flam. Liq. 3, H226;  Resp. Sens. 1, H334;  Skin Corr. 1B, H314;
 Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Sens. 1, H317**SECTION 4: First aid measures**

- **4.1 Description of first aid measures**
- **General information:**
Take affected persons out of danger area and lay down.
Immediately remove any clothing soiled by the product.
- **After inhalation:**
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:**
Immediately rinse with water.
Seek medical treatment.
- **After eye contact:**
Rinse opened eye for several minutes under running water.
Remove contact lenses, if present and easy to do. Continue rinsing.
Call a doctor immediately.
- **After swallowing:**
Rinse mouth.
Do not induce vomiting; call for medical help immediately.
- **4.2 Most important symptoms and effects, both acute and delayed**
Coughing
Cramp
Gastric or intestinal disorders
Dizziness
Nausea
- **Hazards** Danger of circulatory collapse.
- **4.3 Indication of any immediate medical attention and special treatment needed**
Severe allergic skin reaction, bronchial spasms and anaphylactic shock are possible.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Use fire extinguishing methods suitable to surrounding conditions.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet

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- **5.2 Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
In case of fire, the following can be released:
Carbon monoxide
Carbon dioxide
Nitrogen oxides (NO_x)
Amine
- **5.3 Advice for firefighters**
- **Protective equipment:** No special measures required.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Ensure adequate ventilation.
Wear protective equipment. Keep unprotected persons away.
- **6.2 Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
Use neutralizing agent.
Pick up mechanically.
Dispose of the material collected according to regulations.
Dispose contaminated material as waste according to item 13.
- **6.4 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.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about fire and explosion protection:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.
- **Information about storage in one common storage facility:** Do not store together with acids.
- **Further information about storage conditions:**
Protect from frost.
Keep container tightly sealed.
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:** Not required.

· **DNELs**123-41-1 Ethanaminium, 2-hydroxy-N,N,N-trimethyl-, hydroxide
(Choline hydroxide)

Oral DNEL(long/systemic) 5.20 mg/kg bw/day (Consumer)

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Dermal	DNEL(long/systemic)	10.40 mg/kg bw/day (Consumer)
		10.40 mg/kg bw/day (Workers (Industrial/Professional))
Inhalative	DNEL(long/systemic)	36.17 mg/m ³ (Consumer)
		146.69 mg/m ³ (Workers (Industrial/Professional))

· **PNECs****123-41-1 Ethanaminium, 2-hydroxy-N,N,N-trimethyl-, hydroxide
(Choline hydroxide)**

PNEC(STP)	112.90 mg/L (sewage treatment plant)
PNEC(aqua)	0.604 mg/L (freshwater)
	0.0604 mg/L (marine water)
	5.00 mg/L (intermittent release)
PNEC(sediment)	0.50 mg/kg sedi. dw (freshwater)
	0.05 mg/kg sedi. dw (marine water)
PNEC(soil)	0.09 mg/kg soil dw (soil)

· **8.2 Exposure controls**· **Personal protective equipment:**· **General protective and hygienic measures:***Do not eat, drink or smoke when using this product.**Keep away from foodstuffs, beverages and feed.**Avoid contact with the eyes and skin.**Immediately remove all soiled and contaminated clothing.**The usual precautionary measures are to be adhered to when handling chemicals.*· **Respiratory protection:***In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.**Filter AX*· **Protection of hands:***Protective gloves**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***PVC gloves**Rubber 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.*· **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*· **Body protection: Protective work clothing**

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SECTION 9: Physical and chemical properties**· 9.1 Information on basic physical and chemical properties****· General Information****· Appearance:**

Form:	Liquid
Colour:	Colourless
Odour:	Nearly odourless
Odour threshold:	Not determined.

· pH-value (440 g/l) at 21 °C: 14.2 (OECD Guideline 105)**· Change in condition**

Melting point/Melting range:	-20 °C (OECD Guideline 102)
Boiling point/Boiling range:	Not determined.

· Flash point: 99 °C (ASTM D93-07)**· Flammability (solid, gaseous):** Not applicable.**· Ignition temperature:** Not determined.**· Decomposition temperature:** > 90 - 99 °C (ASTM D93-7)**· Self-igniting:** Product is not selfigniting.**· Danger of explosion:** Product does not present an explosion hazard.**· Explosion limits:**

Lower:	Not determined.
Upper:	Not determined.

· Oxidizing properties No**· Vapour pressure at 25 °C:** 28.284 hPa (QSAR)

Density:	Not determined.
Relative density at 20 °C	1.08 (OECD Guideline 109)
Vapour density	Not determined.
Evaporation rate	Not determined.

· Solubility in / Miscibility with water at 22 °C: 486 g/L (OECD Guideline 105)**· Partition coefficient (n-octanol/water): logPow:** -2,25 @ 25 °C (OECD Guideline 107)**· Viscosity:**

Dynamic at 20 °C:	25.30 mPas (OECD Guideline 114)
Kinematic:	Not determined.

· 9.2 Other information No further relevant information available.**SECTION 10: Stability and reactivity****· 10.1 Reactivity** No further relevant information available.**· 10.2 Chemical stability** No decomposition if used and stored according to specifications.**· Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.**· 10.3 Possibility of hazardous reactions** Strong exothermic reaction with acids.**· 10.4 Conditions to avoid** Keep away from heat and direct sunlight.**· 10.5 Incompatible materials:**Corrodes aluminium.
Corrosive action on metals.

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· **10.6 Hazardous decomposition products:** No dangerous decomposition products known.**SECTION 11: Toxicological information**· **11.1 Information on toxicological effects**· **Acute toxicity:**· **LD/LC50 values relevant for classification:****123-41-1 Ethanaminium, 2-hydroxy-N,N,N-trimethyl-, hydroxide
(Choline hydroxide)**

Oral	LD50	3040 mg/kg (Rat) Read-across to CAS 67-48-1
Dermal	LD50	3040 mg/kg (Rat) Read-across to CAS 67-48-1
	NOAEL (repeated dose)	1040 mg/kg bw/day (Rat) (chronic) Read-across to CAS 67-48-1
	NOAEL (reproduction)	68 mg/kg bw/day (Rat) (subchronic) Read-across to CAS 67-48-1

· **Primary irritant effect:**· **on the skin:** Strong caustic effect on skin and mucous membranes.· **on the eye:** Strong caustic effect.· **Sensitization:** No sensitizing effects known.· **Additional toxicological information:**

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

SECTION 12: Ecological information· **12.1 Toxicity**· **Aquatic toxicity:****123-41-1 Ethanaminium, 2-hydroxy-N,N,N-trimethyl-, hydroxide
(Choline hydroxide)**

EC50 (static)	132.80 mg/L (Bacteria) (17 h, DIN 38412 Part 8, <i>Pseudomonas putida</i>) Read-across to CAS 67-48-1
EC50 (48h) (static)	≥ 500.00 mg/L (<i>Daphnia</i>) (EU Method C.2, <i>Daphnia magna</i>) Read-across to CAS 67-48-1
ErC50 (72h) (static)	> 500.00 mg/L (Algae) (DIN 38412 L9, <i>Scenedesmus subspicatus</i>) Read-across to CAS 67-48-1
LC50 (96h) (static)	> 10000.00 mg/L (Fish) (DIN 38412, <i>Leuciscus idus</i>) Read-across to CAS 67-48-1
NOEC (21d)	30.2 mg/L (<i>Daphnia</i>) (OECD Guideline 211, <i>Daphnia magna</i>) static renewal Read-across to CAS 67-48-1

· **12.2 Persistence and degradability**

Readily biodegradable

> 75 % @ 5 d (DIN 38 409 part 43/H5)

Read-across to CAS 67-48-1

· **12.3 Bioaccumulative potential**

Does not accumulate in organisms.

BCF: 3,16 L/kg ww (QSAR)

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· 12.4 Mobility in soil

No further relevant information available.

logKoc: 0,37 (QSAR)

· Additional ecological information:**· General notes:**

Must not reach sewage water or drainage ditch undiluted or unneutralized.

Rinse off of bigger amounts into drains or the aquatic environment may lead to increased pH-values. A high pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably reduced, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

· 12.5 Results of PBT and vPvB assessment**· PBT:** No**· vPvB:** No**· 12.6 Other adverse effects** No further relevant information available.**SECTION 13: Disposal considerations****· 13.1 Waste treatment methods****· Recommendation:**

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

Must be specially treated adhering to official regulations.

· Uncleaned packaging**· Recommendation:** Disposal must be made according to official regulations.**· Recommended cleansing agents:** Water, if necessary together with cleansing agents.**SECTION 14: Transport information****· 14.1 UN-Number****· ADR, IMDG, IATA**

UN3267

· 14.2 UN proper shipping name**· ADR**3267 CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.
(Ethanaminium, 2-hydroxy-N,N,N-trimethyl-, hydroxide
(Choline hydroxide))**· IMDG, IATA**CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.
(Ethanaminium, 2-hydroxy-N,N,N-trimethyl-, hydroxide
(Choline hydroxide))**· 14.3 Transport hazard class(es)****· ADR, IMDG, IATA****· Class**

8 Corrosive substances.

· Label

8

· 14.4 Packing group**· ADR, IMDG, IATA**

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· 14.5 Environmental hazards:	
· Marine pollutant:	No
· 14.6 Special precautions for user	Warning: Corrosive substances.
· Danger code (Kemler):	88
· EMS Number:	F-A,S-B
· 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:	The product is supplied in non-bulk only.
· Transport/Additional information:	
· ADR	
· Tunnel restriction code	E
· UN "Model Regulation":	UN3267, CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (Ethanaminium, 2-hydroxy-N,N,N-trimethyl-, hydroxide (Choline hydroxide)), 8, II

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Chemical Inventories:**
EU - EINECS
EU - REACH
USA - TSCA
Canada - DSL
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has been carried out.

SECTION 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:**
Balchem Corporation
52 Sunrise Park Road
New Hampton, NY 10958
USA
Tel.: +1 845-326-5600
Fax: +1 845-326-5717
Email: sds@balchem.com
- **Abbreviations and acronyms:**
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
MARPOL: (from Marine Pollutant) International Convention for the Prevention of Marine Pollution from Ships
IBC Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
UN: United Nations (also UNO: United Nations Organization)
PBT: persistent, bioaccumulative and toxic
vPvB: very persistent and very bioaccumulative
NOEC: No Observed Effect Concentration
OECD: Organisation for Economic Co-operation and Development
ASTM: American Society for Testing and Materials
WAF: Water Accommodated Fraction
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association

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*GHS: Globally Harmonized System of Classification and Labelling of Chemicals**EINECS: European Inventory of Existing Commercial Chemical Substances**CAS: Chemical Abstracts Service (division of the American Chemical Society)**DNEL: Derived No-Effect Level (REACH)**PNEC: Predicted No-Effect Concentration (REACH)**LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent**Skin Corr. 1A: Skin corrosion/irritation, Hazard Category 1A*