

Safety Data Sheet (SDS)

Monoethanolamine (MEA)

Issue date 01/27/2014

Reviewed on 10/04/2018

1. Identification

- **Product Identifier**
Name of the product: Monoethanolamine (MEA)
Specific Use(s): Refer to attached Annex
- **Details of the Supplier of the Safety Data Sheet:**
- **Manufacturer/Supplier:**
Ramsay Browne Chemical & Company
PO Box 6425
Moraga, CA 94570
General Number: (925) 280-1661
- **Emergency telephone number: (925) 280-1661**

2. Hazard(s) Identification

Classification of the substance or mixture

Labeling



Signal word: Danger

Hazard statement(s):

H302+H312+H332: Harmful if swallowed, in contact with skin or if inhaled.

H314: Causes severe skin burns and eye damage.

H335: May cause respiratory irritation.

H412: Harmful to aquatic life with long lasting effects.

Precautionary statement(s):

Prevention:

P261: Avoid breathing dust/fume/gas/mist/vapours/spray.

P273: Avoid release to the environment.

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

Response:

P303+P361+P353: If on skin (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

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2. Hazard(s) Identification (continued)

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 or doctor/physician.

Hazardous components which must be listed on the label:

Ethanolamine: CAS No - 141-43-5

PBT and vPvB assessment: This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

3. Composition / Information on ingredients

Chemical Name	CAS No	Classification (Regulation (EC) No 1272/2008)	Classification (67/548/EEC)	Concentration %
Ethanolamine	141-43-5	Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 4; H312 Skin Corr. 1B; H314 STOT SE 3; H335 Aquatic Chronic 3; H412	C; R34 Xn; R20/21/22	100

4. First-aid measures

- **General advice:** Immediate medical attention is required. Move out of dangerous area. Show this safety data sheet to the doctor in attendance.
- **If inhaled:** If breathed in, move person into fresh air. Consult a physician after significant exposure.
- **In case of skin contact:** Take off contaminated clothing and shoes immediately. Rinse immediately with plenty of water. Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty. If skin irritation persists, call a physician.
- **In case of eye contact:** Rinse with plenty of water. Get medical attention immediately. Continue to rinse during transport. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. Small amounts splashed into eyes can cause irreversible tissue damage and blindness.

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4. First-aid measures (continued)

- **If swallowed:** Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Take victim immediately to hospital. Do not induce vomiting! May cause chemical burns in mouth and throat.
- **Most important symptoms and effects, both acute and delayed**
- **Symptoms:** No information available.
- **Risks:** No information available.
- **Indication of any immediate medical attention and special treatment needed**
- **Treatment:** Treat symptomatically.

5. Firefighting Measures

- **Extinguishing media:**
- **Suitable extinguishing media:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
- **Special hazards arising from the substance or mixture:**
- **Specific hazards during firefighting/Specific hazards arising from the chemical:** Do not allow run-off from fire fighting to enter drains or water courses.
- **Combustion products:** Carbon oxides, nitrogen oxides (NO_x)
- Advice for firefighters:
- Special protective equipment for firefighters: Wear self-contained breathing apparatus and protective suit.
- **Further information:** Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments

6. Accidental Release Measures

- **Personal precautions, protective equipment and emergency procedures:**
- **Personal precautions: Use personal protective equipment. Wear respiratory protection. Ensure adequate ventilation.**
- **Environmental precautions:** Do not flush into surface water or sanitary sewer system. If the product contaminates rivers and lakes or drains inform respective authorities.
- **Methods and materials for containment and cleaning up:** Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder). Keep in suitable, closed containers for disposal.
- **Reference to other sections:** For personal protection see Section 8.

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7. Handling and Storage

- **Precautions for safe handling:**
- **Advice on safe handling:** For personal protection see Section 8. Avoid formation of aerosol. Do not breathe vapors or spray mist. Smoking, eating and drinking should be prohibited in the application area. Provide sufficient air exchange and/or exhaust in work rooms. Dispose of rinse water in accordance with local and national regulations. Avoid contact with skin, eyes and clothing.
- **Advice on protection against fire and explosion:** Avoid formation of aerosol. Keep away from sources of ignition – No smoking. No sparking tools should be used. Take measures to prevent the build up of electrostatic charge.
- **Requirements for storage areas and containers:** No smoking. Keep container tightly closed in a dry and well-ventilated place. Reacts with copper, aluminum, zinc and their alloys.
- **Other data:** No decomposition if stored and applied as directed.

8. Exposure Controls / Personal Protection

- **Engineering Controls:** Effective exhaust ventilation system. Ensure that eyewash stations and safety showers are close to the workstation location.
- **Personal protective equipment:**
- **Respiratory protection:** In the case of vapor formation use a respirator with an approved filter. Wear full face mask supplied with gas cartridge K (ammonia, green).
- **Hand protection:** butyl-rubber.
- **Eye protection:** Tightly fitting safety goggles. Wear face-shield and protective suit for abnormal processing problems.
- **Skin and body protection:** Protective suit.
- **Hygiene measures:** Handle in accordance with good industrial hygiene and safety practice. When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.
- **Environmental exposure controls:**
- **General advice:** Do not flush into surface water or sanitary sewer system. If the product contaminates rivers and lakes or drains inform respective authorities.

9. Physical and Chemical Properties

- **Form:** liquid
- **Color:** colorless
- **Odor:** amine-like
- **pH:** 12.1 @ 20°C
- **Melting point:** ca. 10.5°C
- **Boiling point:** ca. 170.3°C

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9. Physical and Chemical Properties (continued)

- **Flash point:** 92.5°C, method – ISO 2719
 - **Ignition temperature:** 410°C
 - **Evaporation rate:** no data available
 - **Flammability (solid, gas):** Product is combustible at high temperatures
 - **Lower explosion limit:** 3.4% (V) @ 88.3°C
 - **Upper explosion limit:** 27.0% (V) @ 133.8°C
 - **Vapor pressure:** 0.5 hPa @ 20°C, 4.1 hPa @ 50°C
 - **Relative vapor density:** 2.1
 - **Density:** 1,015.7 kg/m³ @ 20°C
 - **Relative density:** 1.01
 - **Water solubility:** > 1,000 g/l at 20°C soluble
 - **Solubility in other solvents:** Soluble in ethanol and acetone.
 - **Partition coefficient, n-octanol/water:** log Pow: -1.91 @ 25°C, Method: OECD Test Guideline 107
 - **Auto-ignition temperature:** 410°C
 - **Decomposition temperature:** no data available
 - **Viscosity, dynamic:** 23.18 mPa.s @ 20°C
 - **Viscosity, kinematic:** 23.55 mm²/s @ 20°C
 - **Explosive properties:** Not explosive
 - **Oxidizing properties:** The substance or mixture is not classified as oxidizing
 - **Molecular weight:** 61.08 g/mol
- This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

10. Stability and Reactivity – update from here

- **Reactivity:** Stable under normal conditions.
- **Chemical stability:** Stable under recommended storage conditions
- **Possibility of hazardous reactions:** Heating can release hazardous gases.
- **Conditions to avoid:** Heat, flames and sparks
- **Materials to avoid:** Reacts with copper, aluminum, zinc and their alloys. Strong acids and oxidizing agents. Halogenated compounds.
- **Hazardous decomposition products:** Carbon oxides, nitrogen oxides (NO_x)
- **Thermal decomposition:** no data available

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11. Toxicological Information

- **Hazard Summary:**
- **Inhalation:** Inhalation of aerosols may cause irritation to mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors. Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation.
- **Skin:** Symptoms may be delayed. Harmful in contact with skin. Causes severe skin burns.
- **Eyes:** Causes serious eye damage.
- **Ingestion:** Harmful if swallowed. May cause irritation of the mucous membranes. Causes burns.
- Target organ Systemic Toxicant – Single exposure: May cause respiratory irritation.

- **Acute oral toxicity:**
- **LD50:** 1,089 mg/kg
- **Species:** Rat
- **Method:** OECD Test Guideline 401 Literature Data

- **Acute inhalation toxicity:**
- **LC50:** 20 mg/l
- **Exposure time:** 4 h
- **Method:** Acute toxicity estimate

- **Acute dermal toxicity:**
- **LD50:** 2,000 mg/kg
- **Method:** Acute toxicity estimate

- **Skin irritation:**
- **Species:** Rabbit
- **Result:** Causes burns
- **Method:** OECD Test Guideline 404 Literature data

- **Eye irritation:**
- **Species:** Rabbit
- **Result:** Risk of serious damage to eyes
- **Method:** OECD Test Guideline 405 Literature data

- **Sensitization:**
- **Maximization testing**
- **Species:** Guinea Pig
- **Result:** Does not cause skin sensitization

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11. Toxicological Information

- **Germ cell mutagenicity:**
- **Genotoxicity in vitro:**
- **Ames test – Salmonella typhimurium**
- **Result:** negative
- **Method:** OECD Test Guideline 471 Literature data

- **Genotoxicity in vivo:**
- **Species:** Mouse
- **Method:** Mutagenicity (micronucleus test)
- **Result:** Negative
- Literature data

- **Reproductive toxicity/Development/Teratogenicity:**
- **Species:** Rat
- **Application Route:** Oral
- **General Toxicity Maternal:** No observed adverse effect level – 120 mg/kg bw/day
- **Teratogenicity:** No observed adverse effect level: ≥ 450 mg/kg bw/day
- **Method:** OECD Test Guideline 414 Literature data

- **Target Organ Systemic Toxicant – Single exposure:** May cause respiratory irritation

12. Ecological Information

- **Ecotoxicology Assessment:**
- **Results of PBT assessment:** This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
- **Additional ecological information:** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life. Harmful to aquatic life with long lasting effects.

- **Toxicity:**
- **Chronic aquatic toxicity:** Harmful to aquatic life with long lasting effects.
- **Results of PBT assessment:** This substance is not considered to be a PBT (Persistent Bioaccumulation, Toxic). This substance is not considered to be vPvB (very Persistent nor very Bioaccumulating)

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12. Ecological Information (continued)

- **Toxicity to fish:**
- **LC50:** 349 mg/l
- **Exposure time:** 96 h
- **Species:** Cyprinus carpio (Carp)
- **Test Type:** semi-static test Literature data

- **Toxicity to daphnia and other aquatic invertebrates:**
- **EC50:** 65 mg/l
- **Exposure time:** 48 h
- **Species:** Daphnia magna (Water flea)
- **Test type:** static test
- **Method:** 84/449/EEC C.2
- Literature data

- **Toxicity to algae:**
- **ErC50:** 2.5 mg/l
- **Exposure time:** 72 h
- **Species:** Pseudokirchneriella subcapitata (green algae)
- **Method:** OECD Test Guideline 201
- Literature data

- **Toxicity to fish (Chronic toxicity):**
- **NOEC:** 1.2 mg/l
- **Exposure time:** 30 d
- **Species:** Oryzias latipes (Orange-red killifish)
- **Method:** OECD Test Guideline 210
- Literature data

- **Toxicity to daphnia and other aquatic invertebrates (chronic toxicity)**
- **NOEC:** 0.85 mg/l
- **Exposure time:** 21 d
- **Species:** Daphnia magna (Water flea)
- **Method:** OECD Test Guideline 211
- Literature data

- **Biodegradability:**
- **Result:** Readily biodegradable
- **Method:** OECD Test Guideline 301E

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12. Ecological Information (continued)

- **Bioaccumulative potential:** Not expected considering the low Peg value
- **Mobility in soil:** Mobile in soils
- **PBT and vPvB assessment:** This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels or 0.1% or higher.
- **Biochemical Oxygen Demand (BOD):** 800 mg/g

13. Disposal Considerations

- **Product:** The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Hazardous waste. Dispose of contents/container in accordance with local regulation.
- **Contaminated packaging:** Empty remaining contents. Dispose of as unused product.

14. Transport Information

- **ARD:** UN2491
- **RID:** UN2491
- **IMDG-Code:** UN2491
- **IATA-DGR:** UN2491

- **Proper shipping name:**
- **ADR:** Ethanolamine
- **RID:** Ethanolamine
- **IMDG-Code:** Ethanolamine
- **IATA-DGR:** Ethanolamine

- **Transport hazard class:**
- **ADR:** 8
- **RID:** 8
- **IMDG-Code:** 8
- **IATA-DGR:** 8

- **Packing group:**
- **ADR**
- **Packing group:** III
- **Classification Code:** C7
- **Hazard Identification Number:** 80
- **Labels:** 8
- **Tunnel restriction code:** (E)

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14. Transport Information (continued)

- **RID**
- **Packing group:** III
- **Classification Code:** C7
- **Hazard Identification Number:** 80
- **Labels:** 8

- **IMDG-Code**
- **Packing group:** III
- **Labels:** 8
- **EmS Code:** F-A, S-B

- **IATA-DGR**
- **Packing instruction (cargo aircraft):** 856
- **Packing instruction (passenger aircraft):** 852
- **Packing instruction (LQ):** Y841
- **Packing group:** III
- **Labels:** 8

- **Environmental hazards:**
- **ADR, RID, IMDG-Code and IATA-DGR:** Not Environmentally Hazardous
- **Special precautions for user:** not applicable
- **Transport in bulk according to Annex II of MARPOL &3/78 and the IBC Code:** Not applicable for product as supplied.

15. Regulatory Information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Major Accident Hazard:** 96/82/EC
- **Legislation:** not applicable
- **Water contaminating class (Germany):** WGK 1 slightly water endangering

- **Notification status:**
- **CH INV:** YES. The formulation contains substances listed on the Swiss Inventory.
- **TSCA:** YES. All chemical substances in this product are either listed on the TSCA Inventory or in compliance with a TSCA Inventory exemption.
- **DSL:** YES. All components of this product are on the Canadian DSL.
- **AICS:** YES. On the inventory, or in compliance with the inventory.
- **NZIoC:** YES. On the inventory, or in compliance with the inventory.
- **ENCS:** YES. On the inventory, or in compliance with the inventory.

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15. Regulatory Information (continued)

- **ISHL:** YES. On the inventory, or in compliance with the inventory.
- **KECI:** YES. On the inventory, or in compliance with the inventory.
- **PICCS:** YES. On the inventory, or in compliance with the inventory.
- **IECSC:** YES. On the inventory, or in compliance with the inventory.

- This product is to be considered as a substance according to EU-legislation.

16. Other Information

- **PBT:** Persistent, bioaccumulative and toxic
- **vPvB:** Very persistent and very bioaccumulative
- **OEL:** Occupational exposure limit
- **CH INV:** Switzerland. New notified substances and declared preparations
- **TSCA:** United States TSCA Inventory
- **DSL:** Canadian Domestic Substance List (DSL)
- **AICS:** Australian Inventory of Chemical Substances
- **NZIoC:** New Zealand. Inventory of Chemical Substance
- **ENCS:** Japan. Existing and New Chemical Substances Inventory
- **ISHL:** Japan. Inventory of Chemical Substances (METI)
- **KECI:** Korea. Korean Existing Chemicals Inventory
- **PICCS:** Philippines Inventory of Chemicals and Chemical Substances
- **IECSC:** China. Inventory of Existing Chemical Substances in China

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.