



SIGMA-ALDRICH

## Material Safety Data Sheet

Date Printed: 10/15/2004  
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Version 1.50

### Section 1 - Product and Company Information

**Product Name** Ethylenediaminetetraacetic acid, ACS reagent, 99.4-100.06%  
**Product Number** E9884  
**Brand** Sigma Chemical

**Company** Sigma-Aldrich  
**Street Address** 3050 Spruce Street  
**City, State, Zip, Country** SAINT LOUIS, MO 63103 US  
**Technical Phone:** 314 771 5765  
**Fax:** 800 325 5052

**Emergency Phone:** 414 273 3850 Ext. 5996

### Section 2 - Composition/Information on Ingredient

| <u>Substance Name</u>           | <u>CAS #</u> | <u>SARA 313</u> | <u>EC no</u> | <u>Annex I Index Number</u> |
|---------------------------------|--------------|-----------------|--------------|-----------------------------|
| ETHYLENEDIAMINETETRAACETIC ACID | 60-00-4      | No              | 200-449-4    |                             |

**Formula** C10H16N2O8  
**Synonyms** Acide ethylenediaminetetracetique (French), Celon A, Celon ATH, Cheelox, Cheelox BF acid, Chemcolox 340, Clewat TAA, Complexon II, 3,6-Diazaoctanedioic acid, 3,6-bis(carboxymethyl), Edathamil, Edetic acid, EDTA, EDTA (chelating agent), EDTA acid, Endrate, N,N'-1,2-Ethanedilylbis(N-(carboxymethyl)glycine), Ethylenediaminetetraacetate, Ethylenediaminetetraacetic acid, Ethylenediamine-N,N,N',N'-tetraacetic acid, Ethylenedinitrilotetraacetic acid, Gluma cleanser, Glycine, N,N'-1,2-ethanedilylbis(N-(carboxymethyl)- (9CI), Hamp-ene acid, Havidote, ICRF 185, Komplexon II, Kyselina ethylenediamintetraoctova (Czech), Metaquest A, Nervanald B acid, Nullapon B acid, Nullapon BF acid, Perma Kleer 50 acid, Questex 4H, SEQ 100, Sequestrene AA, Sequestric acid, Sequestrol, Tetrine acid, Titriplex, Trilon BS, Trilon BW, Versene acid, Vinkel 100, Warkeelate acid, YD 30

### Section 3 - Hazards Identification

**Emergency Overview**  
Irritant.  
Irritating to eyes, respiratory system and skin.

**HMIS Rating**  
Health: 2 Flammability: 0 Reactivity: 0

**NFPA Rating**  
Health: 2 Flammability: 0 Reactivity: 0

For additional information on toxicity, please refer to Section 11.

### Section 4 - First Aid Measures

**Oral Exposure**  
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

#### Inhalation Exposure

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

#### Dermal Exposure

In case of contact, immediately wash skin with soap and copious amounts of water.

#### Eye Exposure

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

### Section 5 - Fire Fighting Measures

**Autoignition Temp:** N/A

#### Extinguishing Media

##### Suitable

Water spray, Carbon dioxide, dry chemical powder, or appropriate foam.

#### Firefighting

##### Protective Equipment

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

##### Specific Hazard(s)

Emits toxic fumes under fire conditions.

### Section 6 - Accidental Release Measures

#### Procedure(s) of Personal Precaution(s)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

#### Methods for Cleaning Up

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

### Section 7 - Handling and Storage

#### Handling

##### User Exposure

Do not breathe dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

#### Storage

##### Suitable

Keep tightly closed.

### Section 8 - Exposure Controls / PPE

#### Engineering Controls

Safety shower and eye bath. Mechanical exhaust required.

#### Personal Protective Equipment

##### Respiratory

Government approved respirator.

##### Hand

Compatible chemical-resistant gloves.

##### Eye

Chemical safety goggles.

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General Hygiene Measures  
Wash thoroughly after handling.

## Section 9 - Physical/Chemical Properties

|                       |                                                     |                       |
|-----------------------|-----------------------------------------------------|-----------------------|
| Appearance            | Color<br>White                                      | Form<br>Powder        |
| Molecular Weight:     | 292.24 AMU                                          |                       |
| pH                    | 2.5                                                 | 23 °C                 |
| BP/BP Range           | N/A                                                 | Concentration: 10 g/l |
| MP/MP Range           | 250 °C                                              |                       |
| Freezing Point        | N/A                                                 |                       |
| Vapor Pressure        | N/A                                                 |                       |
| Vapor Density         | N/A                                                 |                       |
| Saturated Vapor Conc. | N/A                                                 |                       |
| SG/Density            | N/A                                                 |                       |
| Bulk Density          | N/A                                                 |                       |
| Odor Threshold        | N/A                                                 |                       |
| Volatile%             | N/A                                                 |                       |
| VOC Content           | N/A                                                 |                       |
| Water Content         | N/A                                                 |                       |
| Solvent Content       | N/A                                                 |                       |
| Evaporation Rate      | N/A                                                 |                       |
| Viscosity             | N/A                                                 |                       |
| Partition Coefficient | Log Kow: -3.34                                      |                       |
| Decomposition Temp.   | N/A                                                 |                       |
| Flash Point °F        | N/A                                                 |                       |
| Flash Point °C        | N/A                                                 |                       |
| Explosion Limits      | N/A                                                 |                       |
| Flammability          | N/A                                                 |                       |
| Autoignition Temp     | N/A                                                 |                       |
| Solubility            | Solvent: 0.1M in NaOH 1M, 20°C, complete, colorless |                       |

N/A = not available

## Section 10 - Stability and Reactivity

|                                  |                                                   |
|----------------------------------|---------------------------------------------------|
| Stability                        | Stable                                            |
| Stable                           | Stable                                            |
| Materials to Avoid               | Strong oxidizing agents.                          |
| Hazardous Decomposition Products |                                                   |
| Hazardous Decomposition Products | Carbon monoxide, Carbon dioxide, Nitrogen oxides. |

Hazardous Polymerization  
Hazardous Polymerization  
Will not occur.

## Section 11 - Toxicological Information

|                   |                                                                                                        |
|-------------------|--------------------------------------------------------------------------------------------------------|
| Route of Exposure | Skin Contact                                                                                           |
|                   | May cause skin irritation.                                                                             |
|                   | Skin Absorption                                                                                        |
|                   | May be harmful if absorbed through the skin.                                                           |
|                   | Eye Contact                                                                                            |
|                   | Causes eye irritation.                                                                                 |
|                   | Inhalation                                                                                             |
|                   | May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract. |
|                   | Ingestion                                                                                              |
|                   | May be harmful if swallowed.                                                                           |
| Sensitization     | Sensitization                                                                                          |
|                   | Will not occur                                                                                         |

Signs and Symptoms of Exposure  
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

RETECS Number: AH4025000

### Toxicity Data

|                          |                                                        |
|--------------------------|--------------------------------------------------------|
| Oral - Rat:              | 4,000 mg/kg(LD50)                                      |
| Oral - Rat:              | 2,580 mg/kg(LD50)                                      |
| Intraperitoneal - Rat:   | 397 MG/KG (LD50)                                       |
| Remarks:                 | Behavioral:Convulsions or effect on seizure threshold. |
| Oral - Mouse:            | 30 mg/kg (LD50)                                        |
| Intraperitoneal - Mouse: | 250 MG/KG (LD50)                                       |
| Intravenous - Mouse:     | 28500 UG/KG (LD50)                                     |

### Irritation Data

|                |                                     |
|----------------|-------------------------------------|
| Skin - Rabbit: | Remarks: No irritation effect       |
| Eyes - Rabbit: | Remarks: Moderate irritation effect |

### Chronic Exposure - Teratogen

| Species | Dose                                                                                                                                                                                                       | Route of Application | Exposure Time |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------|
| Rat     | 7632 MG/KG                                                                                                                                                                                                 | Oral                 | (7-14D PREG)  |
|         | Result:Specific Developmental Abnormalities: Eye, ear.<br>Specific Developmental Abnormalities: Craniofacial (including nose and tongue).<br>Specific Developmental Abnormalities: Musculoskeletal system. |                      |               |
| Rat     | 7632 MG/KG                                                                                                                                                                                                 | Oral                 | (7-14D PREG)  |
|         | Result:Specific Developmental Abnormalities: Cardiovascular (circulatory) system.<br>Specific Developmental Abnormalities: Respiratory system.<br>Specific Developmental Abnormalities: Urogenital system. |                      |               |

**Chronic Exposure - Mutagen**

| <u>Species</u> | <u>Dose</u>  |                 | <u>Cell Type</u> | <u>Mutation test</u>                 |
|----------------|--------------|-----------------|------------------|--------------------------------------|
| Rat            | 600 UMOL/L   |                 | Other cell types | DNA inhibition                       |
| Mouse          | 186 MG/KG    | Intraperitoneal |                  | Micronucleus test                    |
| Mouse          | 15 MG/KG     | Oral            |                  | Micronucleus test                    |
| Mouse          | 40500 UMOL/L |                 | lymphocyte       | DNA damage                           |
| Mouse          | 50 MMOL/L    | Intraperitoneal |                  | Cytogenetic analysis                 |
| Mouse          | 25200 UMOL/L |                 | lymphocyte       | Mutation in mammalian somatic cells. |
| Hamster        | 100 UMOL/L   |                 | Embryo           | Unscheduled DNA synthesis            |
| Hamster        | 500 UG/L     |                 | fibroblast       | DNA inhibition                       |
| Hamster        | 30 UMOL/L    |                 | Embryo           | Sister chromatid exchange            |
| Rabbit         | 250 UMOL/L   |                 | kidney           | DNA inhibition                       |

**Chronic Exposure - Reproductive Hazard**

| <u>Species</u>                                                                                                                                                                                                 | <u>Dose</u> | <u>Route of Application</u> | <u>Exposure Time</u> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------------|----------------------|
| Rat                                                                                                                                                                                                            | 7632 MG/KG  | Oral                        | (7-14D PREG)         |
| Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).<br>Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). |             |                             |                      |
| Rat                                                                                                                                                                                                            | 3 GM/KG     | Subcutaneous                | (7-14D PREG)         |
| Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).<br>Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). |             |                             |                      |

**Section 12 - Ecological Information****Acute Ecotoxicity Tests****Test Type**

EC50 Daphnia

**Species**

Daphnia magna

**Time:** Value:  
48.0 h 113 mg/l**Test Type**

LC50 Fish

**Species**

Lepomis macrochirus (Bluegill)

**Time:** Value:  
96.0 h 34 - 62 mg/l**Test Type**

LC50 Fish

**Species**

Pimephales promelas (Fathead minnow)

**Time:** Value:  
96.0 h 44.2 - 76.5 mg/l**Additional Results/Data from Relevant Scientific Experiments**

May be harmful to aquatic organisms due to the shift of the pH. Avoid contamination of the environment

**Section 13 - Disposal Considerations****Appropriate Method of Disposal of Substance or Preparation**

Contact a licensed professional waste disposal service to dispose of this material.

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Observe all federal, state, and local environmental regulations.

**Section 14 - Transport Information****DOT****Proper Shipping Name:** None**Non-Hazardous for Transport:** This substance is considered to be non-hazardous for transport.**IATA****Non-Hazardous for Air Transport:** Non-hazardous for air transport.**Section 15 - Regulatory Information****EU Additional Classification****Symbol of Danger:** Xi**Indication of Danger**

Irritant.

**Risk Statements** R: 36

Irritating to eyes.

**Safety Statements** S: 26

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

**US Classification and Label Text****Indication of Danger**

Irritant.

**Risk Statements**

Irritating to eyes, respiratory system and skin.

**Safety Statements**

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.

**United States Regulatory Information****SARA Listed:** No**TSCA Inventory Item:** Yes**Canada Regulatory Information****WHMIS Classification**

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

**DSL:** Yes**NDSL:** No**Section 16 - Other Information****Disclaimer**

For R&amp;D use only. Not for drug, household or other uses.

**Warranty**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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Health