

### Safety Data Sheet acc. to OSHA HCS (HazCom 2012)

Printing date 06/21/2022

Reviewed on 06/21/2022

## 1 Identification

- **Product identifier**
- **Trade name: Iron Reagent FE8**
- **Catalogue number:** 56Z716098, 56L7160, 56L716030, 56L716065, 56U716030, 56U716065, SDT128.
- **Application of the substance / the mixture:** Reagent for water analysis
- **Manufacturer/Supplier:**  
Tintometer Inc.  
6456 Parkland Drive  
Sarasota, FL 34243  
USA  
phone: (941) 756-6410  
fax: (941) 727-9654  
www.lovibond.us  
Made in Germany
- **Emergency telephone number:** + 1 866 928 0789 (English, French, Spanish)

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS05 Corrosion

Skin Corrosion 1B  
Eye Damage 1

H314 Causes severe skin burns and eye damage.  
H318 Causes serious eye damage.



GHS07

Specific Target Organ Toxicity - Single Exposure 3 H335 May cause respiratory irritation.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Hazard Communication Standard (HCS).
- **Hazard pictograms**



GHS05



GHS07

- **Signal word** Danger
- **Hazard-determining components of labeling:**

2-aminoethanol  
2-hydroxyethylammonium chloride

- **Hazard statements**  
H314 Causes severe skin burns and eye damage.  
H335 May cause respiratory irritation.

- **Precautionary statements**  
P260 Do not breathe mist/vapours/spray.  
P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.  
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
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.

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### Other hazards

Contact with skin and inhalation of aerosols/ vapours of the preparation should be avoided.

CAS 141-43-5: Danger through skin absorption.

Vapours of the product are heavier than air and may accumulate on the ground, in mines, drains or cellars with higher concentration.

## 3 Composition/information on ingredients

### Chemical characterization: Mixtures

**Description:** aqueous solution

### Composition and Information on Ingredients:

Percent ranges are used due to the confidential product information.

CAS: 141-43-5 EINECS: 205-483-3 Index number: 603-030-00-8 RTECS: KJ 5775000	2-aminoethanol ⚠ Skin Corrosion 1B, H314; ⚠ Acute Toxicity - Oral 4, H302; Acute Toxicity - Dermal 4, H312; Acute Toxicity - Inhalation 4, H332; Specific Target Organ Toxicity - Single Exposure 3, H335; Flammable Liquids 4, H227	20–30%
CAS: 2002-24-6 EINECS: 217-900-6 RTECS: KJ6370000	2-hydroxyethylammonium chloride ⚠ Skin Irritation 2, H315; Eye Irritation 2A, H319; Specific Target Organ Toxicity - Single Exposure 3, H335	5–<10%

**Additional information:** For the wording of the listed hazard phrases refer to section 16.

## 4 First-aid measures

### Description of first aid measures

**General information:** Immediately remove any clothing soiled by the product.

**After inhalation:** Supply fresh air or oxygen; call for doctor.

### After skin contact:

Wash with polyethylene glycol 400 and then rinse with copious amounts of water.

Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.

### After eye contact:

Rinse opened eye for several minutes (at least 15 min) under running water.

Call a doctor immediately.

### After swallowing:

Rinse out mouth and then drink 1-2 glasses of water.

Do not induce vomiting; immediately call for medical help.

### Most important symptoms and effects, both acute and delayed

burns

resorption

after inhalation:

mucosal irritations, cough, breathing difficulty

### Danger:

Danger of gastric perforation.

Danger of pulmonary edema.

### Indication of any immediate medical attention and special treatment needed:

If swallowed or in case of vomiting, danger of entering the lungs.

Later observation for pneumonia and pulmonary edema.

## 5 Fire-fighting measures

### Extinguishing media

**Suitable extinguishing agents:** Water, Carbon dioxide (CO<sub>2</sub>), Foam, Fire-extinguishing powder

### For safety reasons unsuitable extinguishing agents:

For this substance / mixture no limitations of extinguishing agents are given.

### Special hazards arising from the substance or mixture

The product is not combustible.

Formation of toxic gases is possible during heating or in case of fire.

In case of fire, the following can be released:

nitrous gases

Nitrogen oxides (NO<sub>x</sub>)

Sulfur oxides (SO<sub>x</sub>)

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Hydrogen chloride (HCl)

· **Advice for firefighters**· **Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

· **Additional information**

Collect contaminated fire fighting water separately. It must not enter the sewage system.

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

Ambient fire may liberate hazardous vapours.

## 6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**· **Advice for non-emergency personnel:**

Wear protective equipment. Keep unprotected persons away.

Avoid substance contact.

Ensure adequate ventilation

Use respiratory protective device against the effects of fume/dust/aerosol.

· **Advice for emergency responders:** Protective equipment: see section 8· **Environmental precautions:** Do not allow product to reach sewage system or any water course.· **Methods and material for containment and cleaning up:**

Ensure adequate ventilation.

Absorb with liquid-binding material (sand, diatomite, universal binders).

Dispose contaminated material as waste according to item 13.

· **Reference to other sections**

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

## 7 Handling and storage

· **Precautions for safe handling**· **Advice on safe handling:**

Ensure good ventilation/exhaustion at the workplace.

Ensure good interior ventilation, especially at floor level. (Fumes are heavier than air).

Prevent formation of aerosols.

· **Hygiene measures:**

Do not inhale gases / fumes / aerosols.

Do not get in eyes, on skin, or on clothing.

Take off immediately all contaminated clothing.

Wash hands before breaks and at the end of work.

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

· **Conditions for safe storage, including any incompatibilities**· **Requirements to be met by storerooms and receptacles:** Store in a cool location.· **Information about storage in one common storage facility:** Not required.· **Further information about storage conditions:**

Store receptacle in a well ventilated area.

Protect from heat and direct sunlight.

Protect from exposure to the light.

Protect from humidity and water.

· **Recommended storage temperature:** 20°C +/- 5°C (approx. 68°F)· **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

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

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

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CAS: 141-43-5 2-aminoethanol	
PEL (USA)	Long-term value: 6 mg/m <sup>3</sup> , 3 ppm
REL (USA)	Short-term value: 15 mg/m <sup>3</sup> , 6 ppm Long-term value: 8 mg/m <sup>3</sup> , 3 ppm
TLV (USA)	Short-term value: 6 ppm Long-term value: 3 ppm
EL (Canada)	Short-term value: 6 ppm Long-term value: 3 ppm
EV (Canada)	Short-term value: 15 mg/m <sup>3</sup> , 6 ppm Long-term value: 7.5 mg/m <sup>3</sup> , 3 ppm

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Engineering measures:**  
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. See item 7.
- **Personal protective equipment:**  
Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.
- **Breathing equipment:** Use respiratory protective device against the effects of fume/dust/aerosol.
- **Recommended filter device for short term use:** Filter A
- **Protection of hands:**  
Preventive skin protection by use of skin-protecting agents is recommended.  
After use of gloves apply skin-cleaning agents and skin cosmetics.
- **Material of gloves**  
Nitrile rubber, NBR  
Recommended thickness of the material:  $\geq 0.11$  mm
- **Penetration time of glove material**  
Value for the permeation: Level  $\leq 1$  (10 min)  
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  
Use protective goggles that have been tested and approved in accordance with government standards (like NIOSH).
- **Body protection:** Protective work clothing
- **Limitation and supervision of exposure into the environment:**  
Do not allow product to reach sewage system or any water course.

## 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **Appearance:**
- **Form / Physical state:** Liquid
- **Color:** Light brown
- **Odor:** Ammonia-like
- **Odor threshold:** CAS 141-43-5: 2-4 ppm
- **pH-value at 20°C (68°F):** 10.5
- **Melting point/freezing point:** Not determined.
- **Initial boiling point and boiling range:** 105°C (221°F)
- **Flash point:** Not applicable.
- **Flammability (solid, gas):** The product is not combustible.
- **Ignition temperature:** Not applicable.
- **Decomposition temperature:** Not determined.
- **Auto-ignition temperature:** Product is not self-igniting.
- **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
- **Flammability or explosive limits:**
- **Lower:** Not determined.
- **Upper:** Not determined.
- **Oxidizing properties:** none
- **Vapor Pressure:** Not determined.
- **Density at 20°C (68°F):** 1 g/cm<sup>3</sup> (8.35 lbs/gal)

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· <b>Relative density:</b>	Not determined.
· <b>Vapor density:</b>	Not determined.
· <b>Evaporation rate:</b>	Not determined.
· <b>Solubility(ies)</b>	
· <b>Water:</b>	Fully miscible.
· <b>Partition coefficient (n-octanol/water):</b>	Not applicable (mixture).
· <b>Viscosity:</b>	
· <b>Kinematic:</b>	Not determined.
· <b>Other information</b>	
· <b>Solids content:</b>	< 10 %
· <b>Solvent content:</b>	
· <b>Organic solvents:</b>	20 - 30 %
· <b>Water:</b>	< 70 %

## 10 Stability and reactivity

- **Reactivity** Fumes can combine with air to form an explosive mixture.
- **Chemical stability** Stable at ambient temperature (room temperature).
- **Possibility of hazardous reactions**  
Reacts with acids, alkalis and oxidizing agents.  
If heated:  
Forms explosive gas mixture with air.
- **Conditions to avoid** Heating.
- **Incompatible materials:**  
copper  
rubber
- **Hazardous decomposition products:** see section 5

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.

### · **Acute toxicity estimate (ATE<sub>(MIX)</sub>) - Calculation method:**

Dermal	GHS ATE <sub>(MIX)</sub>	4831 mg/kg (.)
Inhalative	GHS ATE <sub>(MIX)</sub>	53 mg/l/4h (vapour)

### · **LD/LC50 values that are relevant for classification:**

#### **CAS: 141-43-5 2-aminoethanol**

Oral	LD50	1720 mg/kg (rat) (GESTIS)
Dermal	LD50	1010 mg/kg (rabbit) (GESTIS)
Inhalative	LC50/4h	11 mg/l (ATE)

- **Primary irritant effect:**
- **on the skin:** Causes severe skin burns.
- **on the eye:**  
Causes serious eye damage.  
Risk of blindness!

### · **Information on components:**

#### **CAS: 141-43-5 2-aminoethanol**

Irritation of skin	OECD 404	(rabbit: burns) (IUCLID)
Irritation of eyes	OECD 405	(rabbit: burns) (IUCLID)

- **Sensitization:** Based on available data, the classification criteria are not met.
- **Information on components:** CAS 141-43-5: Sensitizing effect by skin contact is possible with prolonged exposure.

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· **Carcinogenic categories**· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

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

None of the ingredients is listed.

· **Other information:** see section 8 / 15· **Synergistic Products:** None· **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):** The following statements refer to the mixture:· **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** Based on available data, the classification criteria are not met.· **STOT (specific target organ toxicity) -single exposure** May cause respiratory irritation.· **STOT (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.· **Information on components:**

OECD 414: Teratogenicity testing

OECD 473: Mutagenicity testing

OECD 471, 474, 476, 487: Germ cell mutagenicity testing

**CAS: 141-43-5 2-aminoethanol**OECD 471 (negative) (Bacterial Reverse Mutation Test - Ames test)  
(Salmonella typhimurium)

OECD 474 (negative)

· **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.

**CAS: 141-43-5 2-aminoethanol**

(source: GESTIS)

Depending on the concentration and duration of exposure, MEA causes severe irritation or even burns on all contacted mucous membranes and also on the skin, which can occur with a certain delay.

Symptoms of acute poisoning:

Eyes: Conjunctivitis up to damage to the cornea.

Skin: irritation, swelling; chemical burns possible with prolonged exposure to the undiluted substance; sensitization

Inhalation: irritation of the airways up to toxic pulmonary edema; even at lower concentrations, pulmonary dysfunction cannot be ruled out; Resorptive effects can occur relatively quickly

Ingestion: (only experience from animal experiments): irritation to damage to mucous membranes that have been contacted; systemic effects

Absorption (only in animal experiments): loss of muscle tone; sedation, dyspnoea, convulsions, damage to blood vessels;

Functional changes up to damage to various organs (especially liver, kidneys, lungs).

## 12 Ecological information

· **Toxicity**· **Aquatic toxicity:****CAS: 141-43-5 2-aminoethanol**EC50 65 mg/l/48h (Daphnia magna)  
(IUCLID)IC50 22 mg/l/72h (Desmodesmus subspicatus)  
(IUCLID)LC50 150 mg/l/96h (rainbow trout)  
(IUCLID)· **Persistence and degradability****CAS: 141-43-5 2-aminoethanol**

OECD 301 F 90–100 % / 28 d (readily biodegradable) (Manometric Respirometry)

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- **Bioaccumulative potential**  
Pow = n-octanol/wasser partition coefficient  
log Pow < 1 = Does not accumulate in organisms.



<b>CAS: 141-43-5 2-aminoethanol</b>	
log Pow	-1.91 (.) (OECD 107 / 25°C)
<b>CAS: 2002-24-6 2-hydroxyethylammonium chloride</b>	
log Pow	-4.8 (calculation) (Merck)

- **Mobility in soil** No further relevant information available.
- **Other adverse effects** Avoid transfer into the environment.

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.  
Hand over to hazardous waste disposers.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

· <b>UN-Number</b> · <b>DOT, IMDG, IATA</b>	UN2491
· <b>UN proper shipping name</b> · <b>DOT</b> · <b>IMDG, IATA</b>	Ethanolamine solutions ETHANOLAMINE SOLUTION
· <b>Transport hazard class(es)</b> · <b>DOT</b>	
	
· <b>Class</b> · <b>Label</b>	8 Corrosive substances 8
· <b>IMDG, IATA</b>	
	
· <b>Class</b> · <b>Label</b>	8 Corrosive substances 8
· <b>Packing group</b> · <b>DOT, IMDG, IATA</b>	III
· <b>Environmental hazards:</b> · <b>Marine pollutant:</b>	No
· <b>Special precautions for user</b> · <b>Hazard identification number (Kemler code):</b> · <b>EMS Number:</b> · <b>Stowage Category</b> · <b>Segregation Code</b>	Warning: Corrosive substances 80 F-A,S-B A SG35 Stow "separated from" SGG1-acids
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.

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· <b>Transport/Additional information:</b>	
· <b>DOT</b>	
· <b>Quantity limitations</b>	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	5L
· <b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml

## 15 Regulatory information

· <b>Safety, health and environmental regulations/legislation specific for the substance or mixture</b>	
· <b>Sara</b>	
· <b>Section 355 (Extremely hazardous substances):</b>	
None of the ingredients is listed.	
· <b>Section 313 (Specific toxic chemical listings):</b>	
None of the ingredients is listed.	
· <b>TSCA (Toxic Substances Control Act):</b>	
All components have the value ACTIVE.	
· <b>Hazardous Air Pollutants</b>	
None of the ingredients is listed.	
· <b>Proposition 65</b>	
· <b>Chemicals known to cause cancer:</b>	
None of the ingredients is listed.	
· <b>Chemicals known to cause reproductive toxicity for females:</b>	
None of the ingredients is listed.	
· <b>Chemicals known to cause reproductive toxicity for males:</b>	
None of the ingredients is listed.	
· <b>Chemicals known to cause developmental toxicity:</b>	
None of the ingredients is listed.	
· <b>New Jersey Right-to-Know List:</b>	
CAS: 141-43-5	2-aminoethanol
· <b>New Jersey Special Hazardous Substance List:</b>	
CAS: 141-43-5	2-aminoethanol
	CO, F2
· <b>Pennsylvania Right-to-Know List:</b>	
CAS: 141-43-5	2-aminoethanol
· <b>Pennsylvania Special Hazardous Substance List:</b>	
None of the ingredients is listed.	
· <b>EPA (Environmental Protection Agency)</b>	
None of the ingredients is listed.	
· <b>NIOSH-Ca (National Institute for Occupational Safety and Health)</b>	
None of the ingredients is listed.	
· <b>Information about limitation of use:</b>	
Employment restrictions concerning pregnant and lactating women must be observed.	
Observe national regulations where applicable:	
Employment restrictions concerning young persons must be observed.	
· <b>Chemical safety assessment:</b> A Chemical Safety Assessment has not been carried out.	

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### 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.

#### · Relevant phrases

H227 Combustible liquid.  
 H302 Harmful if swallowed.  
 H312 Harmful in contact with skin.  
 H314 Causes severe skin burns and eye damage.  
 H315 Causes skin irritation.  
 H319 Causes serious eye irritation.  
 H332 Harmful if inhaled.  
 H335 May cause respiratory irritation.

#### · Date of preparation / last revision 06/21/2022 / -

#### · Abbreviations and acronyms:

EC50: effective concentration, 50 percent (in vivo)  
 OECD: Organisation for Economic Co-operation and Development  
 STOT: specific target organ toxicity  
 SE: single exposure  
 RE: repeated exposure  
 EC50: half maximal effective concentration  
 IC50: half maximal inhibitory concentration  
 NOEL or NOEC: No Observed Effect Level or Concentration  
 ACGIH® - American Conference of Governmental Industrial Hygienists  
 •A1 - Confirmed human carcinogen  
 •A2 - Suspected human carcinogen  
 •A3 - Confirmed animal carcinogen with unknown relevance to humans  
 •A4 - Not classifiable as a human carcinogen  
 •A5 - Not suspected as a human carcinogen  
 IARC - International Agency for Research on Cancer  
 •Group 1 - Carcinogenic to humans  
 •Group 2A - Probably carcinogenic to humans  
 •Group 2B - Possibly carcinogenic to humans  
 •Group 3 - Not classifiable as to carcinogenicity to humans  
 •Group 4 - Probably not carcinogenic to humans  
 NTP - National Toxicology Program, U.S. Department of Health and Human Services  
 •Group K - Known to be Human Carcinogens  
 •Group R - Reasonably Anticipated to be Human Carcinogens  
 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)  
 LC50: Lethal concentration, 50 percent  
 LD50: Lethal dose, 50 percent  
 NIOSH: National Institute for Occupational Safety  
 OSHA: Occupational Safety & Health  
 TLV: Threshold Limit Value  
 PEL: Permissible Exposure Limit  
 REL: Recommended Exposure Limit  
 Flammable Liquids 4: Flammable liquids – Category 4  
 Acute Toxicity - Oral 4: Acute toxicity – Category 4  
 Skin Corrosion 1B: Skin corrosion/irritation – Category 1B  
 Skin Irritation 2: Skin corrosion/irritation – Category 2  
 Eye Damage 1: Serious eye damage/eye irritation – Category 1  
 Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A  
 Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3

#### · Sources

Data arise from safety data sheets, reference works and literature.  
 GESTIS- Stoffdatenbank (Substance Database, Germany)  
 IUCLID (International Uniform Chemical Information Database)