SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Identification of the substance: Ethylenediamine tetraacetic acid disodium salt dihydrate

Article number: X986

Registration number (REACH): 01-2119486775-20-xxxx

EC number: 205-358-3

CAS number: 6381-92-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses:
- laboratory chemical
- laboratory and analytical use

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone: +49 (0) 721 - 56 06 0
Telefax: +49 (0) 721 - 56 06 149
e-mail: sicherheit@carlroth.de
Website: www.carlroth.de

Competent person responsible for the safety data sheet: Department Health, Safety and Environment

1.4 Emergency telephone number

Emergency information service: Poison Centre Munich: +49/(0)89 19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

<table>
<thead>
<tr>
<th>Classification acc. to GHS</th>
<th>Hazard class</th>
<th>Hazard class and category</th>
<th>Hazard statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1O</td>
<td>acute toxicity (oral)</td>
<td>(Acute Tox. 5)</td>
<td>H303</td>
</tr>
<tr>
<td>3.1I</td>
<td>acute toxicity (inhal.)</td>
<td>(Acute Tox. 4)</td>
<td>H332</td>
</tr>
<tr>
<td>3.9</td>
<td>specific target organ toxicity - repeated exposure</td>
<td>(STOT RE 2)</td>
<td>H373</td>
</tr>
<tr>
<td>4.1A</td>
<td>hazardous to the aquatic environment - acute hazard</td>
<td>(Aquatic Acute 3)</td>
<td>H402</td>
</tr>
</tbody>
</table>

2.2 Label elements
Labelling GHS

Signal word  
Warning

Pictograms  
GHS07, GHS08

Hazard statements

H303  May be harmful if swallowed
H332  Harmful if inhaled
H373  May cause damage to organs (respiratory system) through prolonged or repeated exposure (if inhaled)
H402  Harmful to aquatic life

Precautionary statements

Precautionary statements - prevention
P260  Do not breathe dust/fume/gas/mist/vapours/spray.
P271  Use only outdoors or in a well-ventilated area.
P273  Avoid release to the environment.

Precautionary statements - response
P304+P340  IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312  Call a POISON CENTER/doctor if you feel unwell.

Precautionary statements - disposal
P501  Dispose of contents/container to industrial combustion plant.

Labelling of packages where the contents do not exceed 125 ml
Signal word: Warning

Symbol(s)

H303  May be harmful if swallowed.
H402  Harmful to aquatic life.
P273  Avoid release to the environment.
P312  Call a POISON CENTER/doctor if you feel unwell.
P501  Dispose of contents/container to industrial combustion plant.

2.3 Other hazards
There is no additional information.

SECTION 3: Composition/information on ingredients

3.1 Substances
Name of substance  Ethylenediamine tetraacetic acid disodium salt dihydrate
Registration number (REACH)  01-2119486775-20-xxxx
EC number  205-358-3
CAS number  6381-92-6
SECTION 4: First aid measures

4.1 Description of first aid measures

General notes
Take off contaminated clothing.

Following inhalation
Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact
Rinse skin with water/shower. In all cases of doubt, or when symptoms persist, seek medical advice.

Following eye contact
Rinse cautiously with water for several minutes. In all cases of doubt, or when symptoms persist, seek medical advice.

Following ingestion
Rinse mouth. Call a doctor if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed
Symptoms and effects are not known to date

4.3 Indication of any immediate medical attention and special treatment needed
none

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Co-ordinate fire-fighting measures to the fire surroundings
water spray, foam, dry extinguishing powder, carbon dioxide (CO2)

Unsuitable extinguishing media
water jet

5.2 Special hazards arising from the substance or mixture
Combustible.

Hazardous combustion products
In case of fire may be liberated: nitrogen oxides (NOx), carbon monoxide (CO), carbon dioxide (CO2)
5.3 Advice for firefighters
Do not allow firefighting water to enter drains or water courses. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel
Do not breathe dust. Avoid contact with skin and eyes. Provide adequate ventilation.

6.2 Environmental precautions
Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill
Covering of drains.

Advices on how to clean up a spill
Take up mechanically. Control of dust.

Other information relating to spills and releases
Place in appropriate containers for disposal.

6.4 Reference to other sections

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Provide adequate ventilation as well as local exhaustion at critical locations. Avoid dust formation.

• Measures to prevent fire as well as aerosol and dust generation
Removal of dust deposits.

Advice on general occupational hygiene
Wash hands before breaks and after work.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed. Store in a dry place.

Incompatible substances or mixtures
Observe hints for combined storage.

Consideration of other advice

• Ventilation requirements
Use local and general ventilation.

• Specific designs for storage rooms or vessels
Recommended storage temperature: 15 – 25 °C.
7.3 Specific end use(s)
No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

<table>
<thead>
<tr>
<th>Country</th>
<th>Name of agent</th>
<th>CAS No</th>
<th>Notation</th>
<th>Identifier</th>
<th>TWA [mg/m³]</th>
<th>STEL [mg/m³]</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>JP</td>
<td>particulates not otherwise classified</td>
<td>dust</td>
<td>OEL</td>
<td>8</td>
<td>JSOH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JP</td>
<td>particulates not otherwise classified</td>
<td>r</td>
<td>OEL</td>
<td>2</td>
<td>JSOH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JP</td>
<td>dust</td>
<td>less3silica</td>
<td>OEL</td>
<td>4</td>
<td>JSOH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JP</td>
<td>dust</td>
<td>less3silica</td>
<td>r</td>
<td>OEL</td>
<td>1</td>
<td>JSOH</td>
<td></td>
</tr>
</tbody>
</table>

Notation:
dust: As dust
less3silica: Containing less than 3% crystalline silica
r: Respirable fraction

STEL: Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA: Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Relevant DNELs/DMELs/PNECs and other threshold levels

• human health values

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Threshold level</th>
<th>Protection goal, route of exposure</th>
<th>Used in</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNEL</td>
<td>1,5 mg/m³</td>
<td>human, inhalatory</td>
<td>worker (industry)</td>
<td>chronic - local effects</td>
</tr>
<tr>
<td>DNEL</td>
<td>3 mg/m³</td>
<td>human, inhalatory</td>
<td>worker (industry)</td>
<td>acute - local effects</td>
</tr>
</tbody>
</table>

• environmental values

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Threshold level</th>
<th>Environmental compartment</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>PNEC</td>
<td>2,2 mg/l</td>
<td>freshwater</td>
<td>short-term (single instance)</td>
</tr>
<tr>
<td>PNEC</td>
<td>0,22 mg/l</td>
<td>marine water</td>
<td>short-term (single instance)</td>
</tr>
<tr>
<td>PNEC</td>
<td>43 mg/l</td>
<td>sewage treatment plant (STP)</td>
<td>short-term (single instance)</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection

Use safety goggle with side protection.
Skin protection

• **hand protection**

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

- **type of material**
  NBR (Nitrile rubber)

- **material thickness**
  >0,11 mm

- **breakthrough times of the glove material**
  >480 minutes (permeation: level 6)

- **other protection measures**
  Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection

Respiratory protection necessary at: Dust formation. Particulate filter device (EN 143). P2 (filters at least 94 % of airborne particles, colour code: White).

Environmental exposure controls

Keep away from drains, surface and ground water.

**SECTION 9: Physical and chemical properties**

9.1 **Information on basic physical and chemical properties**

**Appearance**

- Physical state: solid (crystalline)
- Colour: white
- Odour: odourless
- Odour threshold: No data available

**Other physical and chemical parameters**

- **pH (value)**: 4 – 6 (water: 50 g/l, 20 °C)
- Melting point/freezing point: 110 °C
- Initial boiling point and boiling range: This information is not available.
- Flash point: not applicable
- Evaporation rate: no data available
- Flammability (solid, gas): These information are not available
Explosive limits

• lower explosion limit (LEL) this information is not available
• upper explosion limit (UEL) this information is not available

Explosion limits of dust clouds these information are not available

Vapour pressure This information is not available.

Density This information is not available.

Vapour density This information is not available.

Bulk density ~ 700 kg/m³

Relative density Information on this property is not available.

Solubility(ies)

Water solubility ~ 100 g/l at 20 °C

Partition coefficient

n-octanol/water (log KOW) This information is not available.

Auto-ignition temperature Information on this property is not available.

Decomposition temperature >250 °C

Viscosity not relevant (solid matter)

Explosive properties Shall not be classified as explosive

Oxidising properties none

9.2 Other information

There is no additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity
Dust explosibility.

10.2 Chemical stability
The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions
Violent reaction with: Strong oxidiser

10.4 Conditions to avoid
Keep away from heat. Decomposition takes place from temperatures above: >250 °C.

10.5 Incompatible materials
There is no additional information.

10.6 Hazardous decomposition products
Hazardous combustion products: see section 5.
SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Exposure route</th>
<th>Endpoint</th>
<th>Value</th>
<th>Species</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>oral</td>
<td>LD50</td>
<td>2.800 mg/kg</td>
<td>rat</td>
<td>ECHA</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation
Shall not be classified as seriously damaging to the eye or eye irritant.

Respiratory or skin sensitisation
Shall not be classified as a respiratory or skin sensitiser.

Summary of evaluation of the CMR properties
Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant

• Specific target organ toxicity - single exposure
Shall not be classified as a specific target organ toxicant (single exposure).

• Specific target organ toxicity - repeated exposure
May cause damage to organs (respiratory system) through prolonged or repeated exposure (if inhaled).

Aspiration hazard
Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed
data are not available

• If in eyes
essentially non-irritating

• If inhaled
data are not available

• If on skin
essentially non-irritating

Other information
None
SECTION 12: Ecological information

12.1 Toxicity
Harmful to aquatic life.

Aquatic toxicity (acute)
Harmful to aquatic organisms.

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Value</th>
<th>Species</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50</td>
<td>41 mg/l</td>
<td>bluegill (Lepomis macrochirus)</td>
<td>96 h</td>
</tr>
<tr>
<td>EC50</td>
<td>610 mg/l</td>
<td>daphnia magna</td>
<td>24 h</td>
</tr>
</tbody>
</table>

Aquatic toxicity (chronic)

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Value</th>
<th>Species</th>
<th>Source</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50</td>
<td>56 mg/l</td>
<td>Pseudomonas putida</td>
<td>ECHA</td>
<td>8 h</td>
</tr>
<tr>
<td>NOEC</td>
<td>25,7 mg/l</td>
<td>zebra fish (Danio rerio)</td>
<td>ECHA</td>
<td>35 d</td>
</tr>
<tr>
<td>LOEC</td>
<td>50 mg/l</td>
<td>daphnia magna</td>
<td>ECHA</td>
<td>21 d</td>
</tr>
<tr>
<td>growth (EbCx) 10%</td>
<td>&gt;500 mg/l</td>
<td>microorganisms</td>
<td>ECHA</td>
<td>30 min</td>
</tr>
</tbody>
</table>

12.2 Process of degradability
Theoretical Oxygen Demand with nitrification: 0,8811 mg/mg
Theoretical Oxygen Demand: 0,6984 mg/mg
Theoretical Carbon Dioxide: 1,182 mg/mg

12.3 Bioaccumulative potential
BCF 1,8 (ECHA)

12.4 Mobility in soil
Data are not available.

12.5 Results of PBT and vPvB assessment
Data are not available.

12.6 Other adverse effects
Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information
Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.
Sewage disposal-relevant information
Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

13.2 Relevant provisions relating to waste
The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

13.3 Remarks
Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1 UN number
(not subject to transport regulations)

14.2 UN proper shipping name
not relevant

14.3 Transport hazard class(es)
Class
not relevant

14.4 Packing group
not relevant

14.5 Environmental hazards
none (non-environmentally hazardous acc. to the dangerous goods regulations)

14.6 Special precautions for user
There is no additional information.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code
The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations
• Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)
Not subject to ADR, RID and ADN.

• International Maritime Dangerous Goods Code (IMDG)
Not subject to IMDG.

• International Civil Aviation Organization (ICAO-IATA/DGR)
Not subject to ICAO-IATA.

SECTION 15: Regulatory information

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

National inventories
Substance is listed in the following national inventories:

<table>
<thead>
<tr>
<th>Country</th>
<th>National Inventories</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>AU</td>
<td>AICS</td>
<td>substance is listed</td>
</tr>
<tr>
<td>CA</td>
<td>DSL</td>
<td>substance is listed</td>
</tr>
<tr>
<td>CN</td>
<td>IECSC</td>
<td>substance is listed</td>
</tr>
<tr>
<td>EU</td>
<td>ECSI</td>
<td>substance is listed</td>
</tr>
<tr>
<td>EU</td>
<td>REACH Reg.</td>
<td>substance is listed</td>
</tr>
</tbody>
</table>
Ethylenediamine tetraacetic acid disodium salt dihydrate ≥ 99%, USP

article number: X986

<table>
<thead>
<tr>
<th>Country</th>
<th>National inventories</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>MX</td>
<td>INSQ</td>
<td>substance is listed</td>
</tr>
<tr>
<td>NZ</td>
<td>NZIoC</td>
<td>substance is listed</td>
</tr>
<tr>
<td>PH</td>
<td>PICCS</td>
<td>substance is listed</td>
</tr>
<tr>
<td>TR</td>
<td>CICR</td>
<td>substance is listed</td>
</tr>
<tr>
<td>TW</td>
<td>TCSI</td>
<td>substance is listed</td>
</tr>
</tbody>
</table>

Legend

AICS    Australian Inventory of Chemical Substances  
CICR    Chemical Inventory and Control Regulation  
DSL     Domestic Substances List (DSL)  
ECSI    EC Substance Inventory (EINECS, ELINCS, NLP)  
IECSC   Inventory of Existing Chemical Substances Produced or Imported in China  
INSQ    National Inventory of Chemical Substances  
NZIoC   New Zealand Inventory of Chemicals  
PICCS   Philippine Inventory of Chemicals and Chemical Substances  
REACH Reg. REACH registered substances  
TCSI    Taiwan Chemical Substance Inventory

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Abbreviations and acronyms

<table>
<thead>
<tr>
<th>Abbr.</th>
<th>Descriptions of used abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)</td>
</tr>
<tr>
<td>ADR</td>
<td>Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)</td>
</tr>
<tr>
<td>BCF</td>
<td>bioconcentration factor</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)</td>
</tr>
<tr>
<td>CMR</td>
<td>Carcinogenic, Mutagenic or toxic for Reproduction</td>
</tr>
<tr>
<td>DGR</td>
<td>Dangerous Goods Regulations (see IATA/DGR)</td>
</tr>
<tr>
<td>DMEL</td>
<td>Derived Minimal Effect Level</td>
</tr>
<tr>
<td>DNEL</td>
<td>Derived No-Effect Level</td>
</tr>
<tr>
<td>EINECS</td>
<td>European Inventory of Existing Commercial Chemical Substances</td>
</tr>
<tr>
<td>ELINCS</td>
<td>European List of Notified Chemical Substances</td>
</tr>
<tr>
<td>GHS</td>
<td>“Globally Harmonized System of Classification and Labelling of Chemicals” developed by the United Nations</td>
</tr>
<tr>
<td>IATA</td>
<td>International Air Transport Association</td>
</tr>
<tr>
<td>IATA/DGR</td>
<td>Dangerous Goods Regulations (DGR) for the air transport (IATA)</td>
</tr>
<tr>
<td>ICAO</td>
<td>International Civil Aviation Organization</td>
</tr>
<tr>
<td>IMDG</td>
<td>International Maritime Dangerous Goods Code</td>
</tr>
<tr>
<td>MARPOL</td>
<td>International Convention for the Prevention of Pollution from Ships (abbr. of “Marine Pollutant”)</td>
</tr>
<tr>
<td>NLP</td>
<td>No-Longer Polymer</td>
</tr>
</tbody>
</table>
**Safety data sheet**

**JIS Z7253**

**Ethylenediamine tetraacetic acid disodium salt dihydrate ≥ 99%, USP**

*article number: X986*

<table>
<thead>
<tr>
<th>Abbr.</th>
<th>Descriptions of used abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>OEL</td>
<td>workplace exposure limit</td>
</tr>
<tr>
<td>PBT</td>
<td>Persistent, Bioaccumulative and Toxic</td>
</tr>
<tr>
<td>PNEC</td>
<td>Predicted No-Effect Concentration</td>
</tr>
<tr>
<td>REACH</td>
<td>Registration, Evaluation, Authorisation and Restriction of Chemicals</td>
</tr>
<tr>
<td>RID</td>
<td>Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)</td>
</tr>
<tr>
<td>STEL</td>
<td>short-term exposure limit</td>
</tr>
<tr>
<td>TWA</td>
<td>time-weighted average</td>
</tr>
<tr>
<td>vPvB</td>
<td>very Persistent and very Bioaccumulative</td>
</tr>
</tbody>
</table>

**Key literature references and sources for data**
- UN Recommendations on the Transport of Dangerous Good
- Dangerous Goods Regulations (DGR) for the air transport (IATA)
- International Maritime Dangerous Goods Code (IMDG)

**List of relevant phrases (code and full text as stated in chapter 2 and 3)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>H303</td>
<td>may be harmful if swallowed</td>
</tr>
<tr>
<td>H332</td>
<td>harmful if inhaled</td>
</tr>
<tr>
<td>H373</td>
<td>may cause damage to organs (respiratory system) through prolonged or repeated exposure (if inhaled)</td>
</tr>
<tr>
<td>H402</td>
<td>harmful to aquatic life</td>
</tr>
</tbody>
</table>

**Disclaimer**

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.