Voluntary safety information following the Safety Data Sheet format according to Regulation (EC) No. 1907/2006 (REACH)

tri-Sodium citrate dihydrate ≥ 99%, p.a., ACS

article number: 3580
Version: 2.0 en
Replaces version of: 2015-08-11
Version: (1)

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

1.1 Product identifier

Identification of the substance
tri-Sodium citrate dihydrate

Article number 3580
Registration number (REACH) 01-2119457027-40-xxxx
EC number 200-675-3
CAS number 6132-04-3

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

<table>
<thead>
<tr>
<th>Name</th>
<th>Street</th>
<th>Postal code/city</th>
<th>Telephone</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Poisons Information Centre</td>
<td>Beaumont Road</td>
<td>Dublin 9</td>
<td>01 809 2166</td>
<td><a href="https://www.poisons.ie/">https://www.poisons.ie/</a></td>
</tr>
</tbody>
</table>

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)
This substance does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)
not required

Signal word not required
2.3 Other hazards

There is no additional information.

SECTION 3: Composition/information on ingredients

3.1 Substances

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>tri-Sodium citrate dihydrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration number (REACH)</td>
<td>01-2119457027-40-xxxx</td>
</tr>
<tr>
<td>EC number</td>
<td>200-675-3</td>
</tr>
<tr>
<td>CAS number</td>
<td>6132-04-3</td>
</tr>
<tr>
<td>Molecular formula</td>
<td>C₆H₅Na₃O₇ * 2H₂O</td>
</tr>
<tr>
<td>Molar mass</td>
<td>294.1 g/mol</td>
</tr>
</tbody>
</table>

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: carbon monoxide (CO), carbon dioxide (CO₂)

5.3 Advice for firefighters
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.

6.2 Environmental precautions
Keep away from drains, surface and ground water.

6.3 Methods and material for containment and cleaning up
Advice on how to contain a spill
Covering of drains.

Advice on how to clean up a spill
Take up mechanically.

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
No special measures are necessary.

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)
  Data are not available.

Relevant DNELs/DMELs/PNECs and other threshold levels

• environmental values

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Threshold level</th>
<th>Environmental compartment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PNEC</td>
<td>0,44 mg/l</td>
<td>freshwater</td>
</tr>
<tr>
<td>PNEC</td>
<td>0,044 mg/l</td>
<td>marine water</td>
</tr>
<tr>
<td>PNEC</td>
<td>1,000 mg/l</td>
<td>sewage treatment plant (STP)</td>
</tr>
<tr>
<td>PNEC</td>
<td>34,6 mg/kg</td>
<td>freshwater sediment</td>
</tr>
<tr>
<td>PNEC</td>
<td>3,46 mg/kg</td>
<td>marine sediment</td>
</tr>
<tr>
<td>PNEC</td>
<td>33,1 mg/kg</td>
<td>soil</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection

Use safety goggles with side protection.

Skin protection

• hand protection
  Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374.

• type of material
  NBR (Nitrile rubber)

• material thickness
  >0,11 mm
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- 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). P1 (filters at least 80 % 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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value/Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
</tr>
<tr>
<td>Physical state</td>
<td>solid (different)</td>
</tr>
<tr>
<td>Colour</td>
<td>white</td>
</tr>
<tr>
<td>Odour</td>
<td>odourless</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Other physical and chemical parameters</strong></td>
<td></td>
</tr>
<tr>
<td>pH (value)</td>
<td>7,5 – 9 (water: 50 g/l, 20 °C)</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>~ 150 °C</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>This information is not available.</td>
</tr>
<tr>
<td>Flash point</td>
<td>not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>no data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>These information are not available</td>
</tr>
<tr>
<td><strong>Explosive limits</strong></td>
<td></td>
</tr>
<tr>
<td>• lower explosion limit (LEL)</td>
<td>this information is not available</td>
</tr>
<tr>
<td>• upper explosion limit (UEL)</td>
<td>this information is not available</td>
</tr>
<tr>
<td>Explosion limits of dust clouds</td>
<td>these information are not available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>This information is not available</td>
</tr>
<tr>
<td>Density</td>
<td>This information is not available</td>
</tr>
<tr>
<td>Vapour density</td>
<td>This information is not available</td>
</tr>
<tr>
<td>Bulk density</td>
<td>600 – 900 kg/m³</td>
</tr>
<tr>
<td>Relative density</td>
<td>Information on this property is not available.</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>&gt;700 g/l at 25 °C</td>
</tr>
</tbody>
</table>
partition coefficient
n-octanol/water (log KOW)
This information is not available.
Auto-ignition temperature
Information on this property is not available.
Decomposition temperature
>200 °C
Viscosity
not relevant  (solid matter)
Explosive properties
Shall not be classified as explosive
Oxidising properties
none

**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: >200 °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**
Shall not be classified as acutely toxic.

<table>
<thead>
<tr>
<th>Exposure route</th>
<th>Endpoint</th>
<th>Value</th>
<th>Species</th>
<th>Method</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>oral</td>
<td>LD50</td>
<td>&gt;8.000 mg/kg</td>
<td>rat</td>
<td>anhydrous</td>
<td>IUCLID</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.
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• Specific target organ toxicity - single exposure
  Shall not be classified as a specific target organ toxicant (single exposure).

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

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

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed
  vomiting, gastrointestinal complaints

• If in eyes
  slightly irritant

• If inhaled
  data are not available

• If on skin
  Frequently or prolonged contact with skin may cause dermal irritation

Other information
  None

SECTION 12: Ecological information

12.1 Toxicity
  acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute)

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Value</th>
<th>Species</th>
<th>Method</th>
<th>Source</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50</td>
<td>&gt;18.000 mg/l</td>
<td>Poecilia reticulata</td>
<td>anhydrous</td>
<td>IUCID</td>
<td>96 h</td>
</tr>
<tr>
<td>EC50</td>
<td>&gt;5.600 mg/l</td>
<td>daphnia magna</td>
<td>anhydrous</td>
<td>IUCID</td>
<td>48 h</td>
</tr>
</tbody>
</table>

12.2 Process of degradability
  The substance is readily biodegradable.
  Theoretical Oxygen Demand: 0,3899 mg/mg
  Theoretical Carbon Dioxide: 0,8978 mg/mg
  Biochemical Oxygen Demand: 3,6 g/g

<table>
<thead>
<tr>
<th>Process</th>
<th>Degradation rate</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>biotic/abiotic</td>
<td>98 %</td>
<td>3 d</td>
</tr>
</tbody>
</table>

12.3 Bioaccumulative potential
  Data are not available.

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
Consult the appropriate local waste disposal expert about waste disposal.

Sewage disposal-relevant information
Do not empty into drains.

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)
not relevant
Class -

14.4 Packing group
not relevant not assigned to a packing group

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

Relevant provisions of the European Union (EU)

- Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC)
  Not listed.
- Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)
  Not listed.
- Regulation 850/2004/EC on persistent organic pollutants (POP)
  Not listed.
- Restrictions according to REACH, Annex XVII
  not listed
- Restrictions according to REACH, Title VIII
  None.
- List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list
  not listed
- Seveso Directive

<table>
<thead>
<tr>
<th>2012/18/EU (Seveso III)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
</tr>
<tr>
<td>----</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

- Directive 75/324/EEC relating to aerosol dispensers

Filling batch

| VOC content | 0 % |

Directive on industrial emissions (VOCs, 2010/75/EU)

| VOC content | 0 % |

Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II
not listed

Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)
not listed

Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)
not listed

Regulation 98/2013/EU on the marketing and use of explosives precursors
not listed
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Regulation 111/2005/EC laying down rules for the monitoring of trade between the Community and third countries in drug precursors

not listed

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>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>
<tr>
<td>KR</td>
<td>KECI</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>TCSI</td>
<td>substance is listed</td>
</tr>
</tbody>
</table>

Legend

AICS  Australian Inventory of Chemical Substances
CICR  Chemical Inventory and Control Regulation
ECSI  EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC  Inventory of Existing Chemical Substances Produced or Imported in China
KECI  Korea Existing Chemicals Inventory
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

Indication of changes (revised safety data sheet)

<table>
<thead>
<tr>
<th>Section</th>
<th>Former entry (text/value)</th>
<th>Actual entry (text/value)</th>
<th>Safety-relevant</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1</td>
<td>Occupational exposure limit values (Workplace Exposure Limits)</td>
<td>Occupational exposure limit values (Workplace Exposure Limits): Data are not available.</td>
<td>yes</td>
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<tr>
<td>8.1</td>
<td></td>
<td>Occupational exposure limit values (Workplace Exposure Limits): change in the listing (table)</td>
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</tr>
<tr>
<td>8.1</td>
<td></td>
<td>• environmental values: change in the listing (table)</td>
<td>yes</td>
</tr>
<tr>
<td>14.4</td>
<td>Packing group: not relevant</td>
<td>Packing group: not relevant not assigned to a packing group</td>
<td>yes</td>
</tr>
<tr>
<td>14.8</td>
<td></td>
<td>• International Civil Aviation Organization (ICAO-IATA/DGR): Not subject to ICAO-IATA.</td>
<td>yes</td>
</tr>
</tbody>
</table>
**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>CAS</td>
<td>Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)</td>
</tr>
<tr>
<td>CLP</td>
<td>Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures</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>EC50</td>
<td>Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval</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>LC50</td>
<td>Lethal Concentration 50%; the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval</td>
</tr>
<tr>
<td>LD50</td>
<td>Lethal Dose 50 %; the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval</td>
</tr>
<tr>
<td>MARPOL</td>
<td>International Convention for the Prevention of Pollution from Ships (abbr. of &quot;Marine Pollutant&quot;)</td>
</tr>
<tr>
<td>NLP</td>
<td>No-Longer Polymer</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>SVHC</td>
<td>Substance of Very High Concern</td>
</tr>
<tr>
<td>VOC</td>
<td>Volatile Organic Compounds</td>
</tr>
<tr>
<td>vPvB</td>
<td>very Persistent and very Bioaccumulative</td>
</tr>
</tbody>
</table>

**Key literature references and sources for data**
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)
- Dangerous Goods Regulations (DGR) for the air transport (IATA)
- International Maritime Dangerous Goods Code (IMDG)
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List of relevant phrases (code and full text as stated in chapter 2 and 3)
not relevant.

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.