

**Trisodium Citrate Dihydrate**

Version 1.3 Revision Date:  
US / EN 10/28/2022

SDS Number:  
100000000010

Date of last issue: 07/21/2020  
Date of first issue: 06/16/2017

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**SECTION 1. IDENTIFICATION**

Product name : Trisodium Citrate Dihydrate  
Substance name : Trisodium citrate dihydrate  
Molecular formula :  $C_6H_5O_7Na_3 \cdot 2H_2O$   
Chemical identity : Trisodium 2-hydroxypropane-1,2,3-tricarboxylate dihydrate  
CAS-No. : 6132-04-3  
Chemical nature : Solid

**Manufacturer or supplier's details****Details of the supplier of the safety data sheet**

Company : Jungbunzlauer Inc.  
95 Wells Avenue, Suite 150  
Newton, Massachusetts 02459  
USA  
[www.jungbunzlauer.com](http://www.jungbunzlauer.com)

Telephone : +1 617 969-0900  
Telefax : +1 617 964-2921  
E-mail address : [msds@jungbunzlauer.com](mailto:msds@jungbunzlauer.com)  
Responsible/issuing person

**Emergency telephone number**

National Chemical Emergency Centre (NCEC)  
+1 202 464 2554

**Recommended use of the chemical and restrictions on use**

Recommended use : Formulation of preparations  
Industrial use  
Manufacture of chemical products  
Chemical intermediate  
Washing and cleaning products  
Cosmetics, personal care products  
Manufacture of pulp, paper and paper products  
Polymer preparations and compounds  
Plastic articles  
Extraction of crude petroleum  
Coatings and paints, thinners, paint removers  
Water treatment chemicals  
Laboratory chemicals  
Manufacture of basic pharmaceutical products  
Food/ feedstuff additives

Restrictions on use : None known.

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**SECTION 2. HAZARDS IDENTIFICATION**

**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

Not a hazardous substance or mixture.

**GHS label elements**

Not a hazardous substance or mixture.

**Hazards Not Otherwise Classified**

None known.

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**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

|                     |                               |
|---------------------|-------------------------------|
| Substance / Mixture | : Pure substance              |
| Chemical nature     | : Solid                       |
| Substance name      | : Trisodium citrate dihydrate |
| CAS-No.             | : 6132-04-3                   |

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**SECTION 4. FIRST AID MEASURES**

|                                                             |                                                                                                                                                                                 |
|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| General advice                                              | : Do not leave the victim unattended.                                                                                                                                           |
| If inhaled                                                  | : If breathed in, move person into fresh air.<br><br>If unconscious, place in recovery position and seek medical advice.<br>If symptoms persist, call a physician.              |
| In case of skin contact                                     | : Wash off immediately with soap and plenty of water.                                                                                                                           |
| In case of eye contact                                      | : Remove contact lenses.<br>Protect unharmed eye.<br>If eye irritation persists, consult a specialist.                                                                          |
| If swallowed                                                | : Keep respiratory tract clear.<br>Do not give milk or alcoholic beverages.<br>Never give anything by mouth to an unconscious person.<br>If symptoms persist, call a physician. |
| Most important symptoms and effects, both acute and delayed | : None known.                                                                                                                                                                   |
| Notes to physician                                          | : Treat symptomatically.                                                                                                                                                        |

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**SECTION 5. FIREFIGHTING MEASURES**

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|                                               |                                                                                                                                                     |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Suitable extinguishing media                  | : Water spray<br>Dry powder<br>Carbon dioxide (CO <sub>2</sub> )<br>Foam                                                                            |
| Unsuitable extinguishing media                | : High volume water jet                                                                                                                             |
| Specific hazards during firefighting          | : Exposure to decomposition products may be a hazard to health.                                                                                     |
| Hazardous combustion products                 | : Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).                                                                                |
| Further information                           | : Standard procedure for chemical fires.<br>Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Special protective equipment for firefighters | : Wear self-contained breathing apparatus for firefighting if necessary.                                                                            |

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**SECTION 6. ACCIDENTAL RELEASE MEASURES**

|                                                                     |                                                                                                                                    |
|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Personal precautions, protective equipment and emergency procedures | : Avoid dust formation.<br>Avoid breathing dust.<br>Use personal protective equipment.                                             |
| Environmental precautions                                           | : If the product contaminates rivers and lakes or drains inform respective authorities.                                            |
| Methods and materials for containment and cleaning up               | : Pick up and arrange disposal without creating dust.<br>Sweep up and shovel.<br>Keep in suitable, closed containers for disposal. |

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**SECTION 7. HANDLING AND STORAGE**

|                                                 |                                                                                                                                                                              |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Advice on protection against fire and explosion | : Provide appropriate exhaust ventilation at places where dust is formed.                                                                                                    |
| Advice on safe handling                         | : Avoid creating dust.<br><br>For personal protection see section 8.<br>Smoking, eating and drinking should be prohibited in the application area.                           |
| Conditions for safe storage                     | : Keep container tightly closed in a dry and well-ventilated place.<br><br>Electrical installations / working materials must comply with the technological safety standards. |
| Materials to avoid                              | : No materials to be especially mentioned.                                                                                                                                   |

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Further information on storage stability : Keep in a dry place.  
No decomposition if stored and applied as directed.

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**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Components with workplace control parameters**

Contains no substances with occupational exposure limit values.

**Engineering measures** : Provide adequate ventilation.

**Personal protective equipment**

Respiratory protection : No personal respiratory protective equipment normally required.  
  
In the case of dust or aerosol formation use respirator with an approved filter.

Hand protection  
Remarks : Wear suitable gloves.

Eye protection : Safety glasses

Skin and body protection : Protective suit

Hygiene measures : General industrial hygiene practice.

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**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance : crystalline

Colour : white

Odour : odourless

Odour Threshold : Not relevant

pH : 7.5 - 9.0 (77 °F / 25 °C)  
Concentration: 5 %

Melting point/freezing point : > 302 °F / > 150 °C  
Decomposition

Boiling point/boiling range : Decomposes below the boiling point.

Flash point : Not applicable

Flammability (solid, gas) : does not ignite

Upper explosion limit / Upper flammability limit : No data available

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|                                                  |                                           |
|--------------------------------------------------|-------------------------------------------|
| Lower explosion limit / Lower flammability limit | : No data available                       |
| Vapour pressure                                  | : Not applicable                          |
| Relative vapour density                          | : Not applicable                          |
| Relative density                                 | : 1.86 (68 °F / 20 °C)                    |
| Density                                          | : No data available                       |
| Solubility(ies)<br>Water solubility              | : 400 - 700 g/l (68 - 77 °F / 20 - 25 °C) |
| Partition coefficient: n-octanol/water           | : log Pow: -1.8 - -0.2<br>Calculation     |
| Auto-ignition temperature                        | : Not applicable                          |
| Decomposition temperature                        | : Decomposes before melting.              |
| Viscosity<br>Viscosity, kinematic                | : Not applicable                          |
| Explosive properties                             | : Not explosive                           |
| Oxidizing properties                             | : No oxidising effect.                    |
| Molecular weight                                 | : 294.1 g/mol                             |
| Particle size                                    | : ca. 0.2 - 1.25 mm                       |

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**SECTION 10. STABILITY AND REACTIVITY**

|                                    |                                                                                                                                                       |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reactivity                         | : No decomposition if stored and applied as directed.                                                                                                 |
| Chemical stability                 | : No decomposition if stored and applied as directed.                                                                                                 |
| Possibility of hazardous reactions | : Stable under recommended storage conditions.<br>No hazards to be specially mentioned.                                                               |
| Conditions to avoid                | : No data available                                                                                                                                   |
| Incompatible materials             | : Not applicable                                                                                                                                      |
| Hazardous decomposition products   | : Build-up of dangerous/toxic fumes possible in cases of fire/high temperature.<br>Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke). |

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**SECTION 11. TOXICOLOGICAL INFORMATION**

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**Acute toxicity**

Not classified based on available information.

**Non-hazardous ingredients:****Trisodium Citrate Dihydrate:**

Acute oral toxicity : LD50 Oral (Mouse): 5,400 mg/kg  
Method: OECD Test Guideline 401  
Test substance: Non neutralised product  
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : No data available

Acute dermal toxicity : LD50 Dermal (Rat): > 2,000 mg/kg  
Test substance: Non neutralised product  
Assessment: The substance or mixture has no acute dermal toxicity

**Skin corrosion/irritation**

Not classified based on available information.

**Non-hazardous ingredients:****Trisodium Citrate Dihydrate:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation

**Serious eye damage/eye irritation**

Not classified based on available information.

**Non-hazardous ingredients:****Trisodium Citrate Dihydrate:**

Species : Rabbit  
Result : No eye irritation  
Method : OECD Test Guideline 405

**Respiratory or skin sensitisation****Skin sensitisation**

Not classified based on available information.

**Respiratory sensitisation**

Not classified based on available information.

**Non-hazardous ingredients:****Trisodium Citrate Dihydrate:**

Test Type : Maximisation Test

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Species : Guinea pig  
Method : OECD Test Guideline 406  
Result : Does not cause skin sensitisation.  
Remarks : No human information is available.

**Germ cell mutagenicity**

Not classified based on available information.

**Non-hazardous ingredients:****Trisodium Citrate Dihydrate:**

Genotoxicity in vitro : Test Type: Ames test  
Test system: Salmonella typhimurium  
Concentration: 0 - 10 mg/plate  
Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay)  
Result: negative  
Remarks: Information given is based on data obtained from similar substances.

Genotoxicity in vivo : Test Type: Chromosomal aberration  
Species: Rat  
Cell type: Bone marrow  
Application Route: Oral  
Dose: 0,3 mg/kg bw  
Method: OECD Test Guideline 475  
Result: negative  
Test substance: Non neutralised product  
Remarks: Not classified

**Carcinogenicity**

Not classified based on available information.

**Non-hazardous ingredients:****Trisodium Citrate Dihydrate:**

Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

**IARC** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA** No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**NTP** No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**Reproductive toxicity**

Not classified based on available information.

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**Non-hazardous ingredients:****Trisodium Citrate Dihydrate:**

Reproductive toxicity -        :    No toxicity to reproduction  
Assessment

**STOT - single exposure**

Not classified based on available information.

**Non-hazardous ingredients:****Trisodium Citrate Dihydrate:**

Remarks                        :    No data available

**STOT - repeated exposure**

Not classified based on available information.

**Non-hazardous ingredients:****Trisodium Citrate Dihydrate:**

Remarks                        :    No data available

**Repeated dose toxicity****Non-hazardous ingredients:****Trisodium Citrate Dihydrate:**

Species                        :    Rat  
NOAEL                         :    8,000 mg/kg  
LOAEL                         :    16,000 mg/kg  
Application Route           :    Oral  
Exposure time               :    10 d  
Dose                            :    2, 4, 8, 16 g/kg bw/day

**Aspiration toxicity**

Not classified based on available information.

**Non-hazardous ingredients:****Trisodium Citrate Dihydrate:**

No aspiration toxicity classification

**Further information****Product:**

Remarks                        :    No data available



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**SECTION 12. ECOLOGICAL INFORMATION**

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**Ecotoxicity****Non-hazardous ingredients:****Trisodium Citrate Dihydrate:**

- Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 440 mg/l  
Exposure time: 48 h  
Test Type: static test  
Test substance: Non neutralised product  
Method: OECD Test Guideline 203
- Toxicity to daphnia and other : LC50 (Daphnia magna (Water flea)): 1,535 mg/l  
aquatic invertebrates : Exposure time: 24 h  
Test Type: static test  
Test substance: Non neutralised product  
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic : NOEC (Scenedesmus quadricauda (Green algae)): 425 mg/l  
plants : Exposure time: 8 d  
Test Type: static test  
Test substance: Non neutralised product
- Toxicity to microorganisms : TT (Pseudomonas putida): > 10,000 mg/l  
Exposure time: 16 h  
Test substance: Non neutralised product

**Persistence and degradability****Components:****Trisodium Citrate Dihydrate:**

- Biodegradability : Biodegradation: 97 %  
Testing period: 28 d  
Method: OECD Test Guideline 301B  
Test substance: Non neutralised product  
Remarks: Readily biodegradable.
- Biodegradation: 100 %  
Testing period: 19 d  
Method: OECD Test Guideline 301E  
Test substance: Non neutralised product  
Remarks: Readily biodegradable.
- Physico-chemical : Readily biodegradable.  
removability

**Bioaccumulative potential****Components:****Trisodium Citrate Dihydrate:**

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Bioaccumulation : Remarks: The product is miscible in water and readily biodegradable in both water and soil. Accumulation is not expected.

Partition coefficient: n-octanol/water : log Pow: -1.8 - -0.2

**Mobility in soil****Components:****Trisodium Citrate Dihydrate:**

Stability in soil : Remarks: Readily biodegradable.

**Other adverse effects****Product:**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82  
Protection of Stratospheric Ozone - CAA Section 602 Class I Substances  
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App. A + B).

Additional ecological information : No data available

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**SECTION 13. DISPOSAL CONSIDERATIONS****Disposal methods**

Waste from residues : In accordance with local and national regulations.  
Where possible recycling is preferred to disposal or incineration.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.

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**SECTION 14. TRANSPORT INFORMATION****International Regulations****IATA-DGR**

Not regulated as a dangerous good

**IMDG-Code**

Not regulated as a dangerous good

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied.

**National Regulations**

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**DOT**

Not regulated as a hazardous material

**TDG**

Not regulated as a dangerous good

**Special precautions for user**

Not applicable

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**SECTION 15. REGULATORY INFORMATION****CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards** : No SARA Hazards

**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**Clean Air Act**

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

**Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

This product does not contain any priority pollutants related to the U.S. Clean Water Act

**US State Regulations****Massachusetts Right To Know**

No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know**

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**Maine Chemicals of High Concern**

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Product does not contain any listed chemicals

**Vermont Chemicals of High Concern**

Product does not contain any listed chemicals

**Washington Chemicals of High Concern**

Product does not contain any listed chemicals

**The components of this product are reported in the following inventories:**

|       |   |                                                        |
|-------|---|--------------------------------------------------------|
| TCSI  | : | On the inventory, or in compliance with the inventory  |
| TSCA  | : | All substances listed as active on the TSCA inventory  |
| AIIIC | : | On the inventory, or in compliance with the inventory  |
| DSL   | : | All components of this product are on the Canadian DSL |
| ENCS  | : | On the inventory, or in compliance with the inventory  |
| ISHL  | : | On the inventory, or in compliance with the inventory  |
| KECI  | : | On the inventory, or in compliance with the inventory  |
| PICCS | : | On the inventory, or in compliance with the inventory  |
| IECSC | : | On the inventory, or in compliance with the inventory  |
| NZIoC | : | On the inventory, or in compliance with the inventory  |

**TSCA list**

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

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**SECTION 16. OTHER INFORMATION****Full text of other abbreviations**

AIIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical

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Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Items where relevant changes have been made to the previous version are highlighted in the body of this document by two vertical lines, red letters and grey shading.

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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.

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