



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name Trisodium Citrate Dihydrate
Version # 01
Issue date 10-03-2012
Revision date -
Supersedes date -
CAS # 6132-04-3
Product use Food products.
Manufacturer/Supplier Cargill, Inc.
1 Cargill Drive
Eddyville IA 52553
US
General Information: (641) 969-4511
Emergency 24-Hour Emergency: (800) 424-9300

2. Hazards Identification

Physical state Solid.
Appearance White solid.
Emergency overview WARNING!
May form combustible dust concentrations in air (during processing).
OSHA regulatory status This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects
Eyes Direct contact with eyes may cause temporary irritation.
Skin Prolonged or repeated contact may cause itching, redness, and rash in some individuals.
Inhalation Dust may irritate the respiratory system.
Ingestion No harmful effects expected in amounts likely to be ingested by accident.
Signs and symptoms Direct contact with eyes may cause temporary irritation.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Trisodium citrate dihydrate	6132-04-3	100

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First Aid Measures

First aid procedures
Eye contact Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. Get medical attention promptly if symptoms occur after washing.
Skin contact Wash skin with soap and water. Get medical attention promptly if symptoms occur after washing.
Inhalation If symptomatic, move to fresh air. Get medical attention if symptoms persist.
Ingestion Seek medical advice.
Notes to physician Not applicable.

5. Fire Fighting Measures

Flammable properties Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Extinguishing media	
Suitable extinguishing media	Water. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	None known.
Protection of firefighters	
Specific hazards arising from the chemical	Dust may form explosive mixture with air.
Protective equipment and precautions for firefighters	Self-contained breathing apparatus, operated in positive pressure mode and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	None known.
Hazardous combustion products	Carbon oxides. Sodium oxides.

6. Accidental Release Measures

Personal precautions	Wear appropriate personal protective equipment.
Methods for cleaning up	Sweep or scoop up and remove. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Nonsparking tools should be used.

7. Handling and Storage

Handling	Minimize dust generation and accumulation.
Storage	Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.

8. Exposure Controls / Personal Protection

Occupational exposure limits	No exposure limits noted for ingredient(s).
Engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen deficient environment. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Use only appropriately classified electrical equipment and powered industrial trucks.
Personal protective equipment	
Eye / face protection	Wear safety glasses with side shields (or goggles).
Skin protection	It is good industrial hygiene practice to minimize skin contact.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator type: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical & Chemical Properties

Appearance	White solid.
Physical state	Solid.
Form	Crystals.
Color	White.

Trisodium Citrate Dihydrate

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CPH MSDS NA

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Odor	Not available.
Odor threshold	Not available.
pH	8 - 9.5 (10% solution)
Vapor pressure	Not Applicable.
Vapor density	Not Applicable.
Boiling point	Not available.
Melting point/Freezing point	302 °F (150 °C)
Solubility (water)	Moderate 72 g/100 ml (Approximate)
Specific gravity	Not available.
Flash point	Not Applicable.
Flammability limits in air, upper, % by volume	Not Applicable.
Flammability limits in air, lower, % by volume	Not Applicable.
Auto-ignition temperature	Not available.
Evaporation rate	Not Applicable.
Viscosity	Not Applicable.

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Minimize dust generation and accumulation.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Sensitization	No sensitizing effects known.
Acute effects	Dust may irritate the eyes and the respiratory system.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Mutagenicity	Not assigned.
Reproductive effects	Not assigned.
Symptoms and target organs	Direct contact with eyes may cause temporary irritation.

12. Ecological Information

Ecotoxicological data

Product	Species		Test Results
Trisodium Citrate Dihydrate (CAS 6132-04-3)			
Aquatic			
Crustacea	EC50	Daphnia	655 mg/l, 48 hours, estimated

Components	Species		Test Results
Trisodium citrate dihydrate (CAS 6132-04-3)			
Aquatic			
Crustacea	EC50	Water flea (Ceriodaphnia dubia)	655 - 825.9 mg/l, 48 hours

Ecotoxicity	Not expected to be harmful to aquatic organisms.
Persistence and degradability	No data available.
Bioaccumulation / Accumulation	No data available.
Mobility in environmental media	No data available.

13. Disposal Considerations

Disposal instructions	Dispose of contents/container in accordance with local/regional/national/international regulations. When this product as supplied is to be discarded as waste, it does not meet the definition of a RCRA waste under 40 CFR 261.
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information

DOT

Not regulated as a hazardous material by DOT.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

TDG

Not regulated as dangerous goods.

15. Regulatory Information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Under Section 8 (b) TSCA Chemical Substance Inventory, Trisodium citrate dihydrate (CAS# 6132-04-3), is considered to be the hydrated form of Trisodium citrate (CAS# 68-04-2), and is therefore exempt from reporting.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

CERCLA (Superfund) reportable quantity (lbs) (40 CFR 302.4)

None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance (40 CFR 355, Appendix A) No

Section 311/312 (40 CFR 370) Yes

Drug Enforcement Administration (DEA) (21 CFR 1308.11-15) Not controlled

WHMIS status Non-controlled

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

State regulations This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

US. Massachusetts RTK - Substance List

Not regulated.

US. New Jersey Worker and Community Right-to-Know Act

Not regulated.

US. Pennsylvania RTK - Hazardous Substances

Not regulated.

16. Other Information

Further information

HMIS® is a registered trade and service mark of the NPCA.

HMIS® ratings

Health: 1
Flammability: 1
Physical hazard: 0

NFPA ratings

Health: 1
Flammability: 1
Instability: 0

Disclaimer

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.