

Material Safety Data Sheet

Material Name: Sodium Citrate Dihydrate

ID: COC-13

*** Section 1 - Chemical Product and Company Identification ***

Chemical Name: Sodium Citrate Dihydrate, Technical, BP, FCC and USP Grades

Product Use: For Commercial Use

Synonyms: Trisodium Citrate; Citric acid, trisodium salt dihydrate; 1,2,3-propanetricarboxylic acid, 2-hydroxy-trisodium salt

Supplier Information

Chem One Ltd.

8017 Pinemont Drive, Suite 100

Houston, Texas 77040-6519

Phone #: (713) 896-9966

Fax #: (713) 896-7540

Emergency #: (800) 424-9300 or (703) 527-3887

General Comments

NOTE: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

*** Section 2 - Composition / Information on Ingredients ***

CAS #	Components	Percent
6132-04-3	Sodium Citrate, Dihydrate	99-100%

Component Information/Information on Non-Hazardous Components

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication). Information given in this MSDS is also related to Sodium Citrate Anhydrous (CAS # 68-04-2).

*** Section 3 - Hazards Identification ***

Emergency Overview

Product is an odorless, white crystalline, granular, or powdered solid. Product is irritating to the skin and eyes. Dusts are irritating to the respiratory system. Firefighters should wear full protective equipment when fighting a fire involving this product.

Large amounts or airborne dusts of Sodium Citrate can present an air/dust explosion hazard.

Hazard Statements

WARNING! MAY CAUSE RESPIRATORY SYSTEM, SKIN AND EYE IRRITATION. HARMFUL IF INGESTED OR INHALED. Avoid contact with eyes and skin. Avoid breathing dusts. Keep containers closed. Use with adequate ventilation.

Wash thoroughly after handling.

Potential Health Effects: Eyes

Can cause irritation to the eyes.

Potential Health Effects: Skin

May cause skin irritation.

Potential Health Effects: Ingestion

Ingestion of large amounts may cause gastrointestinal irritation. If large quantity of this material is ingested, symptoms may include alkalosis, tetany or depression of the heart by decreasing the ionized calcium level of the blood.

Potential Health Effects: Inhalation

Dusts may cause irritation of the upper respiratory tract.

HMIS Ratings: Health Hazard: 1 Fire Hazard: 0 Physical Hazard: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

*** Section 4 - First Aid Measures ***

First Aid: Eyes

Immediately flush eyes with large amounts of room temperature water, occasionally lifting the lower and upper lids, for at least 15 minutes. If symptoms persist after 15 minutes of irrigation, seek medical attention.

First Aid: Skin

Remove all contaminated clothing. For skin contact, wash thoroughly with soap and water for at least 20 minutes. Seek immediate medical attention if irritation develops or persists.

First Aid: Inhalation

Remove source of contamination or move victim to fresh air. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult. Get immediate medical attention.

Material Safety Data Sheet

Material Name: Sodium Citrate Dihydrate

ID: COC-13

*** Section 4 – First Aid Measures (Continued) ***

First Aid: Ingestion

DO NOT INDUCE VOMITING, unless directed by medical personnel. Have victim rinse mouth thoroughly with water, if conscious. Never give anything by mouth to a victim who is unconscious or having convulsions. Contact a physician or poison control center immediately.

First Aid: Notes to Physician

Provide general supportive measures and treat symptomatically.

*** Section 5 - Fire Fighting Measures ***

Flash Point: Not applicable

Method Used: Not applicable

Upper Flammable Limit (UFL): Not applicable

Lower Flammable Limit (LFL): Not applicable

Auto Ignition: Not applicable

Flammability Classification: Not applicable

Rate of Burning: Not applicable

General Fire Hazards

Firefighters should wear full protective clothing and a self-contained breathing apparatus when fighting fire.

Hazardous Combustion Products

Carbon dioxide and carbon monoxide are normal products of combustion. Incomplete combustion may produce irritating fumes and acrid smoke.

Extinguishing Media

Use extinguishing media appropriate for the surrounding fire and other materials involved in the fire.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing including self-contained breathing apparatus.

NFPA Ratings: Health: 1 Fire: 0 Reactivity: 0 Other:

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

*** Section 6 – Accidental Release Measures ***

Containment Procedures

Stop the flow of material, if this can be done without risk. Contain the discharged material. If sweeping of a contaminated area is necessary use a dust suppressant agent, which does not react with product (see Section 10 for incompatibility information).

Clean-Up Procedures

Wear appropriate protective equipment and clothing during clean-up. Shovel the material into waste container. Thoroughly wash the area after a spill or leak clean-up. Solutions of the compound can be neutralized with citric acid or similar compound. Avoid contamination of soil, and prevent spill residue from running to groundwater or storm drains.

Evacuation Procedures

Evacuate the area promptly and keep upwind of the spilled material. Isolate the spill area to prevent people from entering. Keep materials that burn away from spilled material. In case of large spills, follow all facility emergency response procedures.

Special Procedures

Remove soiled clothing and launder before reuse. Avoid all skin contact with the spilled material. Have emergency equipment readily available.

*** Section 7 - Handling and Storage ***

Handling Procedures

All employees who handle this material should be trained to handle it safely. Do not breathe dust. Avoid all contact with skin and eyes. Use this product only with adequate ventilation. Wash thoroughly after handling.

Material Safety Data Sheet

Material Name: Sodium Citrate Dihydrate

ID: COC-13

*** Section 7 - Handling and Storage (Continued) ***

Storage Procedures

Keep container tightly closed when not in use. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Storage areas should be made of fire-resistant materials. Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Use corrosion-resistant structural materials, lighting, and ventilation systems in the storage area. Floors should be sealed to prevent absorption of this material. Have appropriate extinguishing equipment in the storage area (i.e., sprinkler system, portable fire extinguishers).

Empty containers may contain residual particulates; therefore, empty containers should be handled with care. Do not cut, grind, weld, or drill near this container. Never store food, feed, or drinking water in containers that held this product. Keep this material away from food, drink and animal feed. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Do not store this material in open or unlabeled containers. Limit quantity of material stored. Store in suitable containers that are corrosion-resistant. Keep away from oxidizing materials.

*** Section 8 - Exposure Controls / Personal Protection ***

Exposure Guidelines

A: General Product Information

No exposure guidelines have been established.

B: Component Exposure Limits

ACGIH, OSHA, and NIOSH have not developed exposure limits for any of this product's components.

The exposure limits given are for Particulates Not Otherwise Classified (PNOC).

OSHA: 15 mg/m³ TWA (Total dust)

5 mg/m³ TWA (Respirable fraction)

DFG MAKs 4 mg/m³ TWA (Inhalable fraction)

1.5 mg/m³ TWA (Respirable fraction)

Engineering Controls

Use engineering methods to control hazardous conditions. This includes exhaust ventilation directly to the outside and using a corrosion-resistant ventilation system separate from other exhaust ventilation systems.

PERSONAL PROTECTIVE EQUIPMENT

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132). Please reference applicable regulations and standards for relevant details.

Personal Protective Equipment: Eyes/Face

Wear chemical safety goggles. If necessary, refer to U.S. OSHA 29 CFR 1910.133.

Personal Protective Equipment: Skin

Use impervious gloves. Gloves should be tested to determine their suitability for prolonged contact with this material. If necessary, refer to U.S. OSHA 29 CFR 1910.138.

Personal Protective Equipment: Respiratory

None required where adequate ventilation conditions exist. If airborne concentration is high, use an appropriate respirator or dust mask. If airborne concentrations are above the applicable exposure limits, use NIOSH-approved respiratory protection. If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998).

Personal Protective Equipment: General

Wash hands thoroughly after handling material. Do not eat, drink or smoke in work areas. Have a safety shower or eyewash fountain available. Use good hygiene practices when handling this material, including changing and laundering work clothes after use. Discard contaminated shoes and leather goods.

Material Safety Data Sheet

Material Name: Sodium Citrate Dihydrate

ID: COC-13

*** Section 9 - Physical & Chemical Properties ***

Physical Properties: Additional Information

The data provided in this section are to be used for product safety handling purposes. Please refer to Product Data Sheets, Certificates of Conformity or Certificates of Analysis for chemical and physical data for determinations of quality and for formulation purposes.

Appearance:	White crystals, granules, or powder	Odor:	Odorless
Physical State:	Solid	pH:	8
Vapor Pressure:	Not applicable	Vapor Density:	Not applicable
Boiling Point:	Not applicable	Freezing/Melting Point:	150 deg C (302 deg F)
Solubility (H2O):	72 g/100 mL	Specific Gravity:	1.665
Percent Volatile:	Not applicable	Particle Size:	Granules, powder, or crystals
Softening Point:	Not available	Evaporation Rate:	Not applicable
Viscosity:	Not applicable	Bulk Density:	Not available
Chemical Formula:	Na3C6H5O7•2H2O	Molecular Weight:	294.10

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

Stable

Chemical Stability: Conditions to Avoid

Flame and heat.

Incompatibility

Incompatible with strong oxidizing agents.

Hazardous Decomposition

Carbon dioxide and carbon monoxide.

Hazardous Polymerization

Will not occur.

*** Section 11 - Toxicological Information ***

Acute Toxicity

A: General Product Information

Irritation of the eyes, skin, and upper respiratory system may occur.

B: Component LD50/LC50

Sodium Citrate (68-04-2)

Intraperitoneal, rat: LD50 = 1548 mg/kg; Intraperitoneal, mouse: LD50 = 1364mg/kg; Intravenous, mouse: LD50 =170mg/kg

Carcinogenicity

A: General Product Information

No information available.

B: Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Epidemiology

Information not available.

Neurotoxicity

Has not been identified.

Mutagenicity

Has not been identified.

Teratogenicity

Has not been identified.

Other Toxicological Information

None identified.

*** Section 12 - Ecological Information ***

Ecotoxicity

No information available.

Environmental Fate

No information available.

Material Safety Data Sheet

Material Name: Sodium Citrate Dihydrate

ID: COC-13

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

As shipped, product is not considered a hazardous waste by the EPA.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

Review federal, provincial, and local government requirements prior to disposal.

*** Section 14 - Transportation Information ***

NOTE: The shipping classification information in this section (Section 14) is meant as a guide to the overall classification of the product. However, transportation classifications may be subject to change with changes in package size. Consult shipper requirements under I.M.O., I.C.A.O. (I.A.T.A.) and 49 CFR to assure regulatory compliance.

US DOT Information

Shipping Name: Not Regulated

Hazard Class: Not Classified

UN/NA #: Not Classified

Packing Group: None

Required Label(s): None

International Air Transport Association (IATA)

For Shipments by Air transport: We classify this product as hazardous (Class 9) when shipped by air because 49 CFR 173.140 (a). "For the purposes of this subchapter, miscellaneous hazardous material (Class 9) means a material which presents a hazard during transportation, but which does not meet the definition of any other hazard class. This class includes: (a) Any material which has an anesthetic, noxious, or other similar property which could cause extreme annoyance or discomfort to a flight crew member so as to prevent the correct performance of assigned duties."

UN: UN 3077

Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s. (sodium citrate dihydrate)

Hazard Class: 9

Packing Group: III

Passenger & Cargo Aircraft Packing Instruction: 911

Passenger & Cargo Aircraft Maximum Net Quantity: No Limit

Limited Quantity Packing Instruction (Passenger & Cargo Aircraft): Y911

Limited Quantity Maximum Net Quantity (Passenger & Cargo Aircraft): 30 kg

Special Provisions: A97

ERG Code: 9L

International Maritime Organization (I.M.O.) Classification

Sodium Citrate Dihydrate is not regulated under I.M.O.

*** Section 15 - Regulatory Information ***

US Federal Regulations

A: General Product Information

Components of this product have been checked against the non-confidential TSCA inventory by CAS Registry Number.

Components not identified on this non-confidential inventory are either exempt from listing (i.e. polymers, hydrates) or are listed on the confidential inventory as declared by the supplier.

B: Component Information

This compound is not listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

CERCLA: Final RQ = Not Applicable

SARA 302 (EHS TPQ) There are no specific Threshold Planning Quantities for Sodium Citrate Dihydrate. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs. (4,540 kg) therefore applies, per 40 CFR 370.20.

Material Safety Data Sheet

Material Name: Sodium Citrate Dihydrate

ID: COC-13

***** Section 15 - Regulatory Information (Continued) *****

US Federal Regulations (continued)

C: Sara 311/312 Tier II Hazard Ratings:

Component	CA S #	Fire Hazard	Reactivity Hazard	Pressure Hazard	Immediate Health Hazard	Chronic Health Hazard
Sodium Citrate Dihydrate	6132-04-3	No	No	No	Yes	No

State Regulations

A: General Product Information

Other state regulations may apply.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA
Sodium Citrate Dihydrate	6132-04-3	No	No	No	No	No	No

Other Regulations

A: General Product Information

Not determined.

B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS
Sodium Citrate Dihydrate	6132-04-3	Yes	Yes	Yes

C: Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Sodium Citrate Dihydrate	6132-04-3	No disclosure limit.

ANSI Labeling (Z129.1):

CAUTION! MAY CAUSE RESPIRATORY SYSTEM, SKIN AND EYE IRRITATION. HARMFUL IF INGESTED OR INHALED. Avoid contact with skin, eyes, or clothing. Do not taste or swallow. Avoid breathing dusts and particulates. Use only with adequate ventilation. Wash thoroughly after handling. Wear gloves, goggles, faceshields, suitable body protection, and NIOSH-approved respiratory protection, as appropriate. **FIRST-AID:** In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If inhaled, remove to fresh air. If ingested, do not induce vomiting. Get medical attention. **IN CASE OF FIRE:** Use water fog, dry chemical, CO₂, or "alcohol" foam. **IN CASE OF SPILL:** Absorb spill with inert material. Sweep-up, avoiding generation of dusts. Place residue in suitable container. Consult Material Safety Data Sheet for additional information.

***** Section 16 - Other Information *****

Other Information

Chem One Ltd. ("Chem One") shall not be responsible for the use of any information, product, method, or apparatus herein presented ("Information"), and you must make your own determination as to its suitability and completeness for your own use, for the protection of the environment, and for health and safety purposes. You assume the entire risk of relying on this Information. In no event shall Chem One be responsible for damages of any nature whatsoever resulting from the use of this product or products, or reliance upon this Information. By providing this Information, Chem One neither can nor intends to control the method or manner by which you use, handle, store, or transport Chem One products. If any materials are mentioned that are not Chem One products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed. Chem One makes no representations or warranties, either express or implied of merchantability, fitness for a particular purpose or of any other nature regarding this information, and nothing herein waives any of Chem One's conditions of sale. This information could include technical inaccuracies or typographical errors. Chem One may make improvements and/or changes in the product (s) and/or the program (s) described in this information at any time. If you have any questions, please contact us at Tel. 713-896-9966 or E-mail us at Safety@chemone.com.

Material Safety Data Sheet

Material Name: Sodium Citrate Dihydrate

ID: COC-13

*** Section 16 - Other Information (Continued) ***

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration

Contact: Sue Palmer-Koleman, PhD

Contact Phone: (713)-896-9966

Revision Log

08/28/00 4:09 PM SEP Changed company name, Sect 1 and 16, from Corporation to Ltd.
05/31/01 9:31 AM HDF Checked exposure limits; made changes to Section 9; overall review.
08/20/01 3:55 PM CLJ Add Shipments by Air information to Section 14, Changed contact to Sue, non-800 Chemtrec Num.
02/18/02 11:13 AM HDF Up-date of SARA Hazard Ratings
08/06/03: 9:30 AM HDF General review and up-date of entire MSDS. Up-graded Section 10 Reactivity Information. Up-date of HMIS categories. Up-date of Section 8. Up-date of Section 14.
06/22/05 10:30AM SEP Update IATA Section 14
11/09/06 3:29 pm SEP Update Section 3- added air/dust explosion hazard statement.

This is the end of MSDS #COC-13