

# Ethylenediaminetetraacetic acid iron(III) sodium salt hydrate

sc-239971

Material Safety Data Sheet



The Power is Question

Hazard Alert Code Key:

EXTREME

HIGH

MODERATE

LOW

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT NAME

Ethylenediaminetetraacetic acid iron(III) sodium salt hydrate

### STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

### NFPA



### SUPPLIER

Santa Cruz Biotechnology, Inc.  
2145 Delaware Avenue  
Santa Cruz, California 95060  
800.457.3801 or 831.457.3800

### EMERGENCY

ChemWatch  
Within the US & Canada: 877-715-9305  
Outside the US & Canada: +800 2436 2255  
(1-800-CHEMCALL) or call +613 9573 3112

### SYNONYMS

C<sub>10</sub>H<sub>10</sub>FeN<sub>2</sub>NaO<sub>7</sub>·xH<sub>2</sub>O, C<sub>10</sub>-H<sub>12</sub>-N<sub>2</sub>-O<sub>8</sub>-Na-Fe, "iron sodium ethylene diamine tetraacetic acid", "EDTA, iron (III) derivative, sodium salt", "acetic acid, (ethylenedinitrilo)tetra-, sodium salt, iron complex", "ferrate(1-), ((ethylenedinitrilo)tetraacetato)-, sodium", "edathamil monosodium ferric salt", "ferric sodium EDTA", "ferric sodium edetate", "monosodium ferric EDTA", "sodium ferric EDTA", "sodium iron EDTA", "sodium feredetate", Calmosine, Ferisan, "Sequestrene NaFe iron chelate", Rexene, "NaFe EDTA", "EDTA chelate", "fertiliser trace element", Sytron, 37407

## Section 2 - HAZARDS IDENTIFICATION

### CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability	1	
Toxicity	0	
Body Contact	2	
Reactivity	1	

Min/Nil=0  
Low=1  
Moderate=2  
High=3  
Extreme=4





## CANADIAN WHMIS SYMBOLS



### EMERGENCY OVERVIEW

#### RISK

May cause SENSITISATION by skin contact.  
Irritating to eyes, respiratory system and skin.

### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

#### SWALLOWED

■ The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.

#### EYE

■ This material can cause eye irritation and damage in some persons.

#### SKIN

- This material can cause inflammation of the skin on contact in some persons.
- The material may accentuate any pre-existing dermatitis condition.
- Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.
- Open cuts, abraded or irritated skin should not be exposed to this material.
- Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

#### INHALED

■ The material can cause respiratory irritation in some persons.

The body's response to such irritation can cause further lung damage.

■ Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.

### CHRONIC HEALTH EFFECTS

■ Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.

Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population.

Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung. Prime symptom is breathlessness; lung shadows show on X-ray.

Chelates are occasionally used in therapies for various forms of poisoning. A systemic reaction known as the "excessive chelation syndrome" consists mainly of general unwellness, fatigue, thirst, followed by chills and fever. Muscle ache, headache, loss of appetite, nausea and occasionally increased urinary urgency and frequency may occur, as may cold-like symptoms.

Injection of EDTA and its salts can cause severe kidney damage with tissue death and internal bleeding, bone marrow depression and critically low levels of calcium.

Chronic excessive intake of iron have been associated with damage to the liver and pancreas. People with a genetic disposition to poor control over iron are at an increased risk. Iron overload in men may lead to diabetes, joint inflammation, liver cancer, heart irregularities and problems with other organs.

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
Ethylenediaminetetraacetic acid iron(III) sodium salt hydrate	149022-26-4	100

## Section 4 - FIRST AID MEASURES

## SWALLOWED

- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

## EYE

If this product comes in contact with the eyes

- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Seek medical attention without delay; if pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

## SKIN

If skin contact occurs

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

## INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.

## NOTES TO PHYSICIAN

- Treat symptomatically.

For acute or short term repeated exposures to iron and its derivatives

- Always treat symptoms rather than history.
- In general, however, toxic doses exceed 20 mg/kg of ingested material (as elemental iron) with lethal doses exceeding 180 mg/kg.
- Control of iron stores depend on variation in absorption rather than excretion. Absorption occurs through aspiration, ingestion and burned skin.
- Hepatic damage may progress to failure with hypoproteinaemia and hypoglycaemia. Hepatorenal syndrome may occur.

## Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG)	Not applicable.
Upper Explosive Limit (%)	Not Available
Specific Gravity (water=1)	1.0
Lower Explosive Limit (%)	Not Available

## EXTINGUISHING MEDIA

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).

## FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use water delivered as a fine spray to control fire and cool adjacent area.

## GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

- Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions.
- Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited - particles exceeding this limit will generally not form flammable dust clouds.; once initiated, however, larger particles up to 1400 microns diameter will contribute to the propagation of an explosion.
- In the same way as gases and vapours, dusts in the form of a cloud are only ignitable over a range of concentrations; in principle, the concepts of lower explosive limit (LEL) and upper explosive limit (UEL).are applicable to dust clouds but only the LEL is of practical use; - this is because of the inherent difficulty of achieving homogeneous dust clouds at high temperatures (for dusts the LEL is often called the "Minimum Explosible Concentration", MEC)
- A dust explosion may release of large quantities of gaseous products; this in turn creates a subsequent pressure rise of explosive force capable of damaging plant and buildings and injuring people.

Combustion products include carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), metal oxides, other pyrolysis

products typical of burning organic material.  
 May emit poisonous fumes.  
 May emit corrosive fumes.

**FIRE INCOMPATIBILITY**

- Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

**Section 6 - ACCIDENTAL RELEASE MEASURES**

**MINOR SPILLS**

- Clean up all spills immediately.
- Avoid breathing dust and contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.
- Use dry clean up procedures and avoid generating dust.

**MAJOR SPILLS**

Moderate hazard.

- CAUTION Advise personnel in area.
- Alert Emergency Services and tell them location and nature of hazard.
- Control personal contact by wearing protective clothing.
- Prevent, by any means available, spillage from entering drains or water courses.

**Section 7 - HANDLING AND STORAGE**

**PROCEDURE FOR HANDLING**

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.

Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.

- Do NOT cut, drill, grind or weld such containers.
- In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.

**RECOMMENDED STORAGE METHODS**

- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

**STORAGE REQUIREMENTS**

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.

**Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**

**EXPOSURE CONTROLS**

Source	Material	TWA ppm	TWA mg/m <sup>3</sup>	STEL ppm	STEL mg/m <sup>3</sup>	Peak ppm	Peak mg/m <sup>3</sup>	TWA F/CC	Notes
Canada - Alberta Occupational Exposure Limits	EDTA iron sodium salt (Iron salts, soluble, as Fe)		1						
Canada - British Columbia Occupational Exposure Limits	EDTA iron sodium salt (Iron salts - soluble, as Fe)		1		2				
Canada - Quebec Permissible Exposure Values for Airborne	EDTA iron sodium salt (Iron salts,		1.0						

Contaminants (English)	soluble (as Fe))				
US ACGIH Threshold Limit Values (TLV)	EDTA iron sodium salt (Iron salts, soluble, as Fe)	1			TLV® Basis URT & skin irr
US - Minnesota Permissible Exposure Limits (PELs)	EDTA iron sodium salt (Iron salts (soluble)(as Fe))	1			
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	EDTA iron sodium salt (Iron salts (soluble) (as Fe))	1			
US - California Permissible Exposure Limits for Chemical Contaminants	EDTA iron sodium salt (Iron salts, soluble, as Fe)	1			
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	EDTA iron sodium salt (Iron salts (soluble) (as Fe))	1			
Canada - Prince Edward Island Occupational Exposure Limits	EDTA iron sodium salt (Iron salts, soluble, as Fe)	1			TLV® Basis URT & skin irr
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	EDTA iron sodium salt (Iron salts, soluble, (as Fe))	1		3	
US - Hawaii Air Contaminant Limits	EDTA iron sodium salt (Iron salts (soluble) (as Fe))	1		2	(CAS (Varies with compound))
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	EDTA iron sodium salt (Iron salts, soluble (as Fe))	-	1	-	2
US - Washington Permissible exposure limits of air contaminants	EDTA iron sodium salt (Iron salts, soluble (as Fe))	1			3
US - Alaska Limits for Air Contaminants	EDTA iron sodium salt (Iron salts	1			

	(soluble) (as Fe))			
Canada - Northwest Territories Occupational Exposure Limits (English)	EDTA iron sodium salt (Iron salts, soluble (as Fe))	1	2	
Canada - Nova Scotia Occupational Exposure Limits	EDTA iron sodium salt (Iron salts - soluble (as Fe))	1		TLV Basis upper respiratory tract & skin irritation
US - Michigan Exposure Limits for Air Contaminants	EDTA iron sodium salt (Iron salts (soluble) (as Fe))	1		
US - Oregon Permissible Exposure Limits (Z-1)	EDTA iron sodium salt (Iron salts, soluble, as Fe)	-	1	Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits.

## PERSONAL PROTECTION



## RESPIRATOR

- Particulate. (AS/NZS 1716 & 1715, EN 1432000 & 1492001, ANSI Z88 or national equivalent)

## EYE

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]

## HANDS/FEET

### NOTE

- The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.
- Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.

- polychloroprene
- nitrile rubber

- butyl rubber
- fluorocautchouc

#### OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.

#### ENGINEERING CONTROLS

■ Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

### Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

#### PHYSICAL PROPERTIES

Solid.

Mixes with water.

State	Divided solid	Molecular Weight	367.05
Melting Range (°F)	Not available.	Viscosity	Not Applicable
Boiling Range (°F)	Not available.	Solubility in water (g/L)	Miscible
Flash Point (°F)	Not Available	pH (1% solution)	5-8
Decomposition Temp (°F)	Not available.	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not Available	Vapour Pressure (mmHG)	Not applicable.
Upper Explosive Limit (%)	Not Available	Specific Gravity (water=1)	1.0
Lower Explosive Limit (%)	Not Available	Relative Vapour Density (air=1)	Not applicable
Volatile Component (%vol)	Not applicable.	Evaporation Rate	Not applicable

#### APPEARANCE

Odorless powder; soluble in water (75g/litre @ 20 deg.C).

### Section 10 - CHEMICAL STABILITY

#### CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

#### STORAGE INCOMPATIBILITY

- Salts of ethylenediaminetetraacetic acid (EDTA)
  - should not come into contact with strong oxidisers
  - are incompatible with metals such as zinc, aluminum, carbon steel, copper, copper alloys, galvanized metals and nickel.
  - in contact with metals, such as aluminum, may generate flammable hydrogen gas
  - in contact with bases, may evolve hydrogen and oxygen

For incompatible materials - refer to Section 7 - Handling and Storage.

### Section 11 - TOXICOLOGICAL INFORMATION

EDTA iron sodium salt

#### TOXICITY AND IRRITATION

- Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a

non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound.

Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.

#### For ethylenediaminetetraacetic acid (EDTA) and its salts

EDTA is a strong organic acid (approximately 1000 times stronger than acetic acid). It has a high affinity for alkaline-earth ions (for example, calcium and magnesium) and heavy-metal ions (for example, lead and mercury).

#### CARCINOGEN

EDTA iron sodium salt	US - Rhode Island Hazardous Substance List	IARC
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### Section 12 - ECOLOGICAL INFORMATION

No data

#### Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
EDTA iron sodium salt	HIGH	No Data Available	LOW	MED

### Section 13 - DISPOSAL CONSIDERATIONS

#### Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

Otherwise:

- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
- Where possible retain label warnings and MSDS and observe all notices pertaining to the product.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate. In most instances the supplier of the material should be consulted.

- DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Dispose of by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus (after admixture with suitable combustible material)
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

### Section 14 - TRANSPORTATION INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG

### Section 15 - REGULATORY INFORMATION



**EDTA iron sodium salt (CAS: 15708-41-5,15708-42-6,149022-26-4) is found on the following regulatory lists;**

"Canada CEPA Environmental Registry Substance Lists - Other DSL substances that are priorities for human health (English)", "Canada Domestic Substances List (DSL)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "International Council of Chemical Associations (ICCA) - High Production Volume List", "OECD List of High Production Volume (HPV) Chemicals", "US EPA High Production Volume Program Chemical List", "US FDA CFSAN GRAS Substances evaluated by the Select Committee on GRAS Substances (SCOGS)", "US FDA List of ""Indirect"" Additives Used in Food Contact Substances", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

**Section 16 - OTHER INFORMATION**

**LIMITED EVIDENCE**

- Cumulative effects may result following exposure\*.  
\* (limited evidence).

**Ingredients with multiple CAS Nos**

Ingredient Name	CAS
EDTA iron sodium salt	15708-41-5, 15708-42-6, 149022-26-4

- Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:  
[www.chemwatch.net/references](http://www.chemwatch.net/references).

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

- For detailed advice on Personal Protective Equipment, refer to the following U.S. Regulations and Standards:

OSHA Standards - 29 CFR:

1910.132 - Personal Protective Equipment - General requirements

1910.133 - Eye and face protection

1910.134 - Respiratory Protection

1910.136 - Occupational foot protection

1910.138 - Hand Protection

Eye and face protection - ANSI Z87.1

Foot protection - ANSI Z41

Respirators must be NIOSH approved.

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