

# MATERIAL SAFETY DATA SHEET

JUNGBUNZLAUER INC.

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Product: Citric Acid Anhydrous

Review date 5/22/08

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

COMMERCIAL PRODUCT NAME: Citric Acid Anhydrous  
COMPANY/SUPPLIER: Jungbunzlauer Inc.  
7 Wells Avenue  
Newton Centre, MA 02459  
Emergency Phone: 1- 617-969-0900; 8:30 - 5:00 M-F Eastern Time  
Fax: 1 617 964 2921  
**24 Hour Emergency Phone Number: CHEMTREC 1-800-424-9300**  
PRODUCT USE: Widely used acidulant for flavoring, beverages, food, and as a basic chemical.

## 2. COMPOSITION, INFORMATION ON INGREDIENTS

Chemical Name Of The Material: 2-hydroxy-1,2,3-propane tricarboxylic acid  
Chemical Formula:  $C_6H_8O_7$   
Chemical Family: Organic Acid  
SYNONYMS: Citric Acid, Beta-hydroxytricarboxylic acid.

COMPOSITION:	CAS Reg. No.	%
Citric Acid Anhydrous	77-92-9	100

EC-No. 201-069-1

European Food Additive E330

HAZARDOUS IMPURITIES: None

## 3. HAZARDS IDENTIFICATION

Emergency Overview: Odorless, colorless translucent crystals with strong acidic taste. Citric acid is a skin and mucous membrane irritant and an eye irritant. It may cause allergic reactions in some individuals.

**Most important Hazard: Irritating to eyes.**

Potential Health Effects:

Inhalation: May cause mucous membrane irritation with sore throat, coughing and shortness of breath.

Eye contact: May cause irritation with redness, pain, possible eye burns, conjunctivitis, ulceration and permanent cloudiness.

Skin contact: May cause irritation with swelling, redness and pain.

Ingestion: May cause acute gastrointestinal irritation with abdominal pain.

Chronic: Repeated or prolonged skin contact may result in dermatitis. Prolonged or repeated eye contact may result in conjunctivitis. Long term oral overexposure may cause damage to tooth enamel.

Carcinogen status: None

## 4. FIRST AID MEASURES

General advice: Consult a physician.  
Major effects of exposure: Irritating to eyes and skin.  
Inhalation: Move to fresh air.  
Skin contact: Wash off immediately with soap and plenty of water.  
If skin irritation persists, call a physician.  
Eye contact: Rinse immediately with plenty of water and seek medical advice.  
Ingestion: Drink plenty of water. Do not induce vomiting.  
Consult a physician if necessary  
Protection of first-aiders: Use personal protective equipment.

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## 5. FIRE FIGHTING MEASURES

FLASH POINT	Not Applicable
FLAMMABLE LIMITS	Lower 8 gm/FT <sup>3</sup> Upper 65 gm/FT <sup>3</sup>
Autoignition temperature:	1010°C / 1850°F
Suitable extinguishing media	water, water spray, dry powder, foam , carbon dioxide (CO <sub>2</sub> ), remove containers if possible. Cool container exposed to fire with water spray.
Extinguishing media which must not be used for safety reasons	None
Hazardous decomposition products	carbon oxides
Special protective equipment for firefighters	Use personal protective equipment including self-contained breathing apparatus when fighting fire in enclosed area.
Specific methods	Standard procedure for chemical fires.

## 6. ACCIDENTAL RELEASE MEASURES

General:	Wear dust respirator and protective clothing. Keep unnecessary personnel away. Sweep or vacuum into closed containers for disposal. Dispose in compliance with local, state, and federal regulations.
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## 7. HANDLING AND STORAGE

Handling:	<b>Avoid contact with eyes and prolonged contact with skin. Avoid breathing large amounts of dust. Wash away splashes and spillages with water.</b>
Storage Temperature:	Ambient storage pressure: atmospheric
General:	Store in cool dry area away from incompatible materials and protected from moisture. Protect containers from damage.
Incompatible products	Incompatible with strong bases and oxidizing agents
Empty Containers:	Empty containers retain product residue and vapors. Observe all label precautions even after container is emptied. Do not reuse unless thoroughly cleaned.

## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering measures	Provide general dilute ventilation.
Exposure limit(s)	None established for this ingredient, use OSHA PEL, ACGIH TLV for Nuisance dusts of 5 mg/ m <sup>3</sup> .
Personal protection equipment	
Respiratory protection	NIOSH approved dust respirator
Hand protection	Gloves
Eye Protection	Safety glasses
Skin and body protection	Lightweight protective clothing
Hygiene measures	Handle in accordance with good industrial hygiene and safety practice.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

Form	crystalline powder
Color	colorless / white
Odor	none
pH (5 % solution)	1.8
Vapor pressure	3.70E-009mm Hg@25°C
Vapor density	not applicable
Boiling point	175°C
Evaporation rate	essentially 0
Coefficient of water/oil distrib Log P (oct)	-1.72 (measured)
Log P (oct)	-1.25 to -1.80 (calculated)
Melting point/range	153 °C
Decomposition temperature	> 170 °C
Relative density	1,665 g/cm3
Bulk density	650 - 950 kg/m3
Solubility, Water solubility (25 °C)	576 g/kg
Solubility in other solvents, Alcohol (25 °C)	383 g/l
Molecular weight	192.12

## 10. STABILITY AND REACTIVITY

Stability	Stable at normal conditions
Conditions to avoid	Avoid dust formation and moisture. Take precautionary measures against static discharges.
Materials to avoid	Incompatible with strong bases and oxidizing agents.
Hazardous polymerization	Does not occur.
Corrosion	May corrode metals. 316 Stainless Steel recommended for handling.

## 11. TOXICOLOGICAL INFORMATION

Acute toxicity	LD50/p.o./rat	11,700 mg/kg
	LD50/i.p./rat	885 mg/kg
	LD50/p.o./mouse	5,040 mg/kg
	LD50/l.p./mouse	961 mg/kg
Local effects	Irritating to eyes and skin	
Chronic toxicity	None	
Human experience	Health injuries are not known or expected under normal use.	

## 12. ECOLOGICAL INFORMATION

Mobility	Completely soluble
Persistence and degradability	
Chemical oxygen demand	(COD) = 728 mg O2/g
Biological oxygen demand/5 days	(BOD) = 528 mg O2/g
Readily biodegradable	98% after 2 days
Bioaccumulation	None
Ecotoxicity effects	Toxicity to fish (LC50/96h/goldfish) = 440-706 mg/l Toxicity to bacteria(EC0) = >10,000 mg/l

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## 13. DISPOSAL CONSIDERATIONS

Waste from residues/unused products

Any disposal practice must be in compliance with local, state and federal laws and regulations (contact local or state environmental agency for specific rules).

## 14. TRANSPORT INFORMATION

Not Regulated

Not classified as dangerous according to TDG (Transportation of Dangerous Goods) and US DOT (Department of Transportation)

## 15. REGULATORY INFORMATION

Citric acid is generally regarded as safe (GRAS) by USA FDA. 21 CFR 184.1033

Meets the criteria for hazardous material as defined by OSHA Hazard Communication Standard 21 CFR 1910.1200.

The material is listed on the TSCA Inventory List.

CERCLA (Comprehensive Response Compensation, and Liability Act): Not hazardous

SARA Title III (Superfund Amendments and Reauthorization Bill): Not Considered Hazardous

Foreign Inventory Status

Canadian DSL (Domestic Substance List) WHMIS – Class E

IDL – Citric Acid (CAS-No. 77-92-9) is listed on the Ingredient Disclosure List

DSL – Citric Acid (CAS-No. 77-92-9) is listed on the Domestic Substance List

To the best of our knowledge, Jungbunzlauer Citric Acid Anhydrous does not contain any contaminants or bi-products known to the State of California to cause cancer or reproductive toxicity as listed under Proposition 65 State Drinking Water and Toxic Enforcement Act.

## 16. OTHER INFORMATION

HMIS\* Rating Health = 1, Fire = 0, Reactivity = 0

0=minimal, 1=slight, 2=moderate, 3=serious, 4=severe

\*Hazardous Materials Identification System of the National Paint and Coating Association.

MSDS Status: Reviewed 5/22/08 by the Technical Service Department of Jungbunzlauer Inc.

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## Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

### 1.1 Product identifier

**Product Name** • **Salt with Anti-Caking Additives**

**Synonyms** • (Plain) Salt; 50/50 Flour Prepared Salt; 999 Chemical Grade Salt w/YPS; Agri-flo Salt; Coarse Kosher Salt; Coarse Vacuum Salt w/YPS; Diamond M Salt; Evaporated Granulated Salt; Extra Fine 200 Salt; Extra Fine 325 Salt; Extra Fine Refined Sea Salt; Feed Mixing Salt; Fine Refined Sea Salt; Fine Solar Salt w/YPS; Flour Salt; Foodservice (Plain) Salt; H.G. Blending Prepared Salt; H.G. Blending w/TCP; ISCO Mixing, Bulk; KD Fine Solar Salt w/YPS; Kleer Fine Salt; Kleer Mixing Salt w/YPS; Louisiana Pure Evaporated Salt; Oilfield Salt (all); Popcorn Salt; PureSun TFC Culinary Crystals; Purex Fine Prepared Salt; Purex Salt (w/Tricalcium Phosphate); Refined Flour Salt; ROM Fine Salt; Sea Salt, Coarse; Sea Salt, Fine; Snack Flour Salt; Sodium Salt; Star Flake Dendritic ES Salt; Star Flake Dendritic Salt; Star Flake Dendritic Salt with TCP; Table Salt; TCP 200 Salt; TCP 325 Salt; TFC 200 Salt; TFC 325 Salt; TFC 999 Fine Salt; TFC 999 Salt; TFC H.G. Blending Salt; TFC Purex Salt; TFC Refined Sea Salt; Top Flake Salt (all); Vacuum Refined Granulated Salt; White Pretzel Salt (all)

**Product Code** • MSDS Code: G200

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

**Relevant identified use(s)** • Food and Chemical Additive or Processing – See product data sheets for more information

### 1.3 Details of the supplier of the safety data sheet

**Manufacturer** • Morton Salt, Inc.  
123 N. Wacker Drive  
Chicago, IL 60606  
United States  
  
saltinfo@mortonsalt.com

**Telephone (General)** • 312-807-2000

### 1.4 Emergency telephone number

**Manufacturer** • 312-807-2000

## Section 2: Hazards Identification

### EU/EEC

According to: Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]

According to: EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

### 2.1 Classification of the substance or mixture

**CLP** • Not classified

**DSD/DPD** • Not classified

## 2.2 Label Elements

CLP

**Hazard statements** • No label element(s) specifically required

DSD/DPD

**Risk phrases** • No label element(s) specifically required

## 2.3 Other Hazards

CLP • According to Regulation (EC) No. 1272/2008 (CLP) this material is not considered hazardous.

DSD/DPD • According to European Directive 1999/45/EC this preparation is not considered dangerous.

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## United States (US)

According to: OSHA 29 CFR 1910.1200 HCS

## 2.1 Classification of the substance or mixture

OSHA HCS 2012 • Not classified

## 2.2 Label elements

OSHA HCS 2012

**Hazard statements** • No label element(s) specifically required

## 2.3 Other hazards

OSHA HCS 2012 • This product is not considered hazardous under the U.S. OSHA 29 CFR 1910.1200 Hazard Communication Standard.

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## Canada

According to: WHMIS

## 2.1 Classification of the substance or mixture

WHMIS • Not classified

## 2.2 Label elements

WHMIS • No label element(s) specifically required

## 2.3 Other hazards

WHMIS • In Canada, the product mentioned above is not considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

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## Section 3 - Composition/Information on Ingredients

### 3.1 Substances

• Material does not meet the criteria of a substance in accordance with Regulation (EC) No 1272/2008.

### 3.2 Mixtures

Composition					
Chemical Name	Identifiers	%	LD50/LC50	Classifications According to	Comments

				Regulation/Directive	
Sodium chloride	CAS:7647-14-5 EINECS:231-598-3	> 98%	Ingestion/Oral-Rat LD50 • 3 g/kg	EU DSD/DPD: Not Classified EU CLP: Not Classified OSHA HCS 2012: Not Classified	NDA
Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	CAS:1306-06-5 EINECS:215-145-7	0% TO 2%	Ingestion/Oral-Rat LD50 • >25350 mg/kg	EU DSD/DPD: Not Classified EU CLP: Not Classified OSHA HCS 2012: Not Classified	Anti-caking Agent
Silicic acid, aluminum sodium salt	CAS:1344-00-9 EINECS:215-684-8	< 1%	Ingestion/Oral-Rat LD50 • >27 g/kg	EU DSD/DPD: Not Classified EU CLP: Not Classified OSHA HCS 2012: Not Classified	Anti-caking Agent
Calcium silicate	CAS:1344-95-2 EINECS:215-710-8	< 1%	NDA	EU DSD/DPD: Not Classified EU CLP: Not Classified OSHA HCS 2012: Not Classified	Anti-caking Agent
Yellow Prusslate of Soda	CAS:13601-19-9 EINECS:237-081-9	< 0.0013%	NDA	EU DSD/DPD: Not Classified EU CLP: Not Classified OSHA HCS 2012: Not Classified	Anti-caking Agent

Contains one or more anti-caking agents.

## Section 4 - First Aid Measures

### 4.1 Description of first aid measures

- Inhalation** • Move victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing.
- Skin** • IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
- Eye** • In case of contact with substance, immediately flush eyes with running water for at least 20 minutes. If eye irritation persists: Get medical advice/attention.
- Ingestion** • If large quantities are swallowed, call a physician immediately.

### 4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

### 4.3 Indication of any immediate medical attention and special treatment needed

- Notes to Physician** • All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

## Section 5 - Firefighting Measures

### 5.1 Extinguishing media

- Suitable Extinguishing Media** • Material is non-combustible. In case of fire use media as appropriate for surrounding fire.
- Unsuitable Extinguishing Media** • No data available.

### 5.2 Special hazards arising from the substance or mixture

- Unusual Fire and Explosion Hazards** • No unusual fire or explosion hazards known.
- Hazardous Combustion Products** • No data available

### 5.3 Advice for firefighters

- Structural firefighters' protective clothing will only provide limited protection. Wear positive pressure self-contained breathing apparatus (SCBA).

## Section 6 - Accidental Release Measures

### 6.1 Personal precautions, protective equipment and emergency procedures

- Personal Precautions** • Wear suitable protective clothing, gloves, and eye/face protection.
- Emergency Procedures** • Stop leak if you can do it without risk. Keep unauthorized personnel away. Use normal clean up procedures.

### 6.2 Environmental precautions

- None expected to be necessary if material is used under ordinary conditions and as recommended.

### 6.3 Methods and material for containment and cleaning up

- Containment/Clean-up Measures** • Carefully shovel or sweep up spilled material and place in suitable container.

### 6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

## Section 7 - Handling and Storage

### 7.1 Precautions for safe handling

- Handling** • Use good safety and industrial hygiene practices. Wash thoroughly after handling. Keep out of reach of children.

### 7.2 Conditions for safe storage, including any incompatibilities

- Storage** • Avoid storage with strong acids and strong oxidizing agents.
- Incompatible Materials or Ignition Sources** • Strong oxidizing agents, strong acids.

### 7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

## Section 8 - Exposure Controls/Personal Protection

### 8.1 Control parameters

Exposure Limits/Guidelines						
	Result	ACGIH	Canada Ontario	Canada Quebec	Germany DFG	Mexico
Yellow Prusslate of Soda	TWAs	Not established	Not established	Not established	Not established	5 mg/m3 TWA LMPE-PPT (as CN)  <i>as Cyanide compounds</i>
	Ceilings	Not established	Not established	10 ppm Ceiling (as CN); 11 mg/m3 Ceiling (as CN)  <i>as Cyanide compounds</i>	2 mg/m3 Peak (inhalable fraction, as CN)  <i>as Cyanide compounds</i>	Not established
	MAKs	Not established	Not established	Not established	2 mg/m3 TWA MAK (inhalable fraction, as CN)  <i>as Cyanide compounds</i>	Not established
Calcium silicate (1344-95-2)	TWAs	10 mg/m3 TWA (synthetic nonfibrous, particulate matter containing no	10 mg/m3 TWA (synthetic nonfibrous, containing no Asbestos and <1%	10 mg/m3 TWA EV (synthetic, containing no Asbestos and <1% Crystalline silica, total dust)	Not established	10 mg/m3 TWA LMPE-PPT (inhalable fraction)



	asbestos and <1% crystalline silica)	Crystalline silica)		
Exposure Limits/Guidelines (Con't.)				
	Result	NIOSH	OSHA	
Yellow Prusslate of Soda	TWAs	Not established	5 mg/m3 TWA (as CN) <i>as Cyanide compounds</i>	
Calcium silicate (1344-95-2)	TWAs	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)	

**Exposure Control Notations**

**Germany DFG**

•Yellow Prusslate of Soda as Cyanide compounds: **Pregnancy:** (no risk to embryo/fetus if exposure limits adhered to (calculated as CN)) | **Skin:** (skin notation)

**8.2 Exposure controls**

**Engineering Measures/Controls** • Adequate ventilation systems as needed to control concentrations of airborne contaminants below applicable threshold limit values.

**Personal Protective Equipment**

**Pictograms**



**Respiratory**

• In case of insufficient ventilation, wear suitable respiratory equipment.

**Eye/Face**

• Wear safety glasses.

**Skin/Body**

• Wear appropriate gloves.

**General Industrial Hygiene Considerations**

• Do not get in eyes or on skin or clothing. Handle in accordance with good industrial hygiene and safety practice.

**Environmental Exposure Controls**

• Follow best practice for site management and disposal of waste.

**Key to abbreviations**

ACGIH = American Conference of Governmental Industrial Hygiene

OSHA = Occupational Safety and Health Administration

MAK = Maximale Arbeitsplatz Konzentration is the maximum permissible concentration

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

NIOSH = National Institute of Occupational Safety and Health

**Section 9 - Physical and Chemical Properties**

**9.1 Information on Physical and Chemical Properties**

Material Description			
Physical Form	Solid	Appearance/Description	Colorless to white crystalline solid.
Color	Colorless to White.	Odor	Data lacking
Particulate Size	Variable	Odor Threshold	Data lacking
General Properties			
Boiling Point	Data lacking	Melting Point/Freezing Point	Data lacking
Decomposition Temperature	Data lacking	pH	7 to 9 (approximately)
Specific Gravity/Relative Density	= 2.165 Water=1	Water Solubility	36 g / 100 cc water at 20°C (68°F). Anti-caking agent is insoluble
Viscosity	Data lacking	Explosive Properties	Not relevant.
Oxidizing Properties:	Not relevant.		
Volatility			
Vapor Pressure	Data lacking	Vapor Density	Data lacking

Evaporation Rate	Data lacking		
<b>Flammability</b>			
Flash Point	Data lacking	UEL	Data lacking
LEL	Data lacking	Autoignition	Data lacking
Flammability (solid, gas)	Not flammable.		
<b>Environmental</b>			
Octanol/Water Partition coefficient	Data lacking		

## 9.2 Other Information

- No additional physical and chemical parameters noted.

## Section 10: Stability and Reactivity

### 10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

### 10.2 Chemical stability

- Stable

### 10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

### 10.4 Conditions to avoid

- Incompatible materials.

### 10.5 Incompatible materials

- Strong oxidizing agents, strong acids.

### 10.6 Hazardous decomposition products

- Will react with strong acids to generate hydrogen chloride and with strong oxidizing agents to generate chlorine gas.

## Section 11 - Toxicological Information

### 11.1 Information on toxicological effects

Components		
Sodium chloride (> 98%)	7647-14-5	<b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • 3000 mg/kg; <b>Irritation:</b> Eye-Rabbit • 10 mg • Moderate irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation
Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI) (0% TO 2%)	1306-06-5	<b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • >25350 mg/kg
Silicic acid, aluminum sodium salt (< 1%)	1344-00-9	<b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • >27 g/kg

GHS Properties	Classification
Respiratory sensitization	<b>EU/CLP</b> •Classification criteria not met <b>OSHA HCS 2012</b> •Classification criteria not met
Serious eye damage/Irritation	<b>EU/CLP</b> •Classification criteria not met <b>OSHA HCS 2012</b> •Classification criteria not met
Acute toxicity	<b>EU/CLP</b> •Classification criteria not met <b>OSHA HCS 2012</b> •Classification criteria not met
Aspiration Hazard	<b>EU/CLP</b> •Classification criteria not met <b>OSHA HCS 2012</b> •Classification criteria not met
Carcinogenicity	<b>EU/CLP</b> •Classification criteria not met

	OSHA HCS 2012•Classification criteria not met
Skin corrosion/Irritation	EU/CLP•Classification criteria not met OSHA HCS 2012•Classification criteria not met
Skin sensitization	EU/CLP•Classification criteria not met OSHA HCS 2012•Classification criteria not met
STOT-RE	EU/CLP•Classification criteria not met OSHA HCS 2012•Classification criteria not met
STOT-SE	EU/CLP•Classification criteria not met OSHA HCS 2012•Classification criteria not met
Toxicity for Reproduction	EU/CLP•Classification criteria not met OSHA HCS 2012•Classification criteria not met
Germ Cell Mutagenicity	EU/CLP•Classification criteria not met OSHA HCS 2012•Classification criteria not met

## Potential Health Effects

### Inhalation

**Acute (Immediate)** • Under normal conditions of use, no health effects are expected. Inhalation of dust may cause mild irritation to mucous membranes, nose and throat. Symptoms may include coughing, dryness and sore throat.

**Chronic (Delayed)** • No data available.

### Skin

**Acute (Immediate)** • Under normal conditions of use, no health effects are expected.

**Chronic (Delayed)** • No data available.

### Eye

**Acute (Immediate)** • Based upon practical use and experience using this product eye irritation is not expected to occur.

**Chronic (Delayed)** • No data available.

### Ingestion

**Acute (Immediate)** • Ingestion may cause the following symptoms - diarrhea.

**Chronic (Delayed)** • No data available.

#### Key to abbreviations

LD = Lethal Dose

MLD = Mild

MOD = Moderate

## Section 12 - Ecological Information

### 12.1 Toxicity

• Material data lacking.

### 12.2 Persistence and degradability

• Material data lacking.

### 12.3 Bioaccumulative potential

• Material data lacking.

## 12.4 Mobility in Soil

- Material data lacking.

## 12.5 Results of PBT and vPvB assessment

- No PBT and vPvB assessment has been conducted.

## 12.6 Other adverse effects

- No studies have been found.

## Section 13 - Disposal Considerations

### 13.1 Waste treatment methods

**Product waste** • Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

**Packaging waste** • Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

## Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	NDA	Not regulated	NDA	NDA	NDA
TDG	NDA	Not regulated	NDA	NDA	NDA
IMO/IMDG	NDA	Not regulated	NDA	NDA	NDA
IATA/ICAO	NDA	Not regulated	NDA	NDA	NDA

**14.6 Special precautions for user** • None known.

**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** • Not relevant.

## Section 15 - Regulatory Information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### SARA Hazard Classifications

- None

State Right To Know				
Component	CAS	MA	NJ	PA
Calcium silicate	1344-95-2	Yes	Yes	Yes
Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> (9CI))	1306-06-5	No	No	No
Silicic acid, aluminum sodium salt	1344-00-9	No	No	No
Sodium chloride	7647-14-5	No	No	No
Yellow Prusslate of Soda	13601-19-9	No	Yes	Yes

Inventory						
Component	CAS	Canada DSL	Canada NDSL	EU EINECS	EU ELNICS	TSCA
Calcium silicate	1344-95-2	Yes	No	Yes	No	Yes
Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> (9CI))	1306-06-5	Yes	No	Yes	No	Yes

Silicic acid, aluminum sodium salt	1344-00-9	Yes	No	Yes	No	Yes
Sodium chloride	7647-14-5	Yes	No	Yes	No	Yes
Yellow Prusslate of Soda	13601-19-9	Yes	No	Yes	No	Yes

## Canada

### Labor

#### Canada - WHMIS - Classifications of Substances

•Calcium silicate	1344-95-2	Uncontrolled product according to WHMIS classification criteria
•Silicic acid, aluminum sodium salt	1344-00-9	Uncontrolled product according to WHMIS classification criteria
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Uncontrolled product according to WHMIS classification criteria
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

#### Canada - WHMIS - Ingredient Disclosure List

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

### Environment

#### Canada - 2004 NPRI (National Pollutant Release Inventory)

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

#### Canada - 2005 NPRI (National Pollutant Release Inventory)

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

#### Canada - CEPA - Greenhouse Gases Subject to Mandatory Reporting

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

#### Canada - CEPA - Priority Substances List

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

#### Canada - DWQ (Drinking Water Quality) - IMACs

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed

•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

## Other

### Canada - Accelerated Reduction/Elimination of Toxics (ARET)

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

## Canada New Brunswick

### Environment

#### Canada - New Brunswick - Ozone Depleting Substances - Schedule A

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

#### Canada - New Brunswick - Ozone Depleting Substances - Schedule B

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

## Europe

### Other

#### EU - CLP (1272/2008) - Annex VI - Table 3.2 - Classification

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

#### EU - CLP (1272/2008) - Annex VI - Table 3.2 - Concentration Limits

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

#### EU - CLP (1272/2008) - Annex VI - Table 3.2 - Labelling

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

#### EU - CLP (1272/2008) - Annex VI - Table 3.2 - Notes - Substances and Preparations

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

#### EU - CLP (1272/2008) - Annex VI - Table 3.2 - Safety Phrases

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed

•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

## Mexico

### Other

#### Mexico - Hazard Classifications

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

#### Mexico - Regulated Substances

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

## United States

### Labor

#### U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

#### U.S. - OSHA - Specifically Regulated Chemicals

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

### Environment

#### U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		(XCN where X=H or any other group where a formal dissociation may occur. For example KCN or Ca[CN] <sub>2</sub> )
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

#### U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

#### U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

#### U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed
<b>U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs</b>		
•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed
<b>U.S. - CERCLA/SARA - Section 313 - Emission Reporting</b>		
•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		1.0 % de minimis concentration (X+CN- where X = H+ or any other group where a formal dissociation can be made. For example KCN or Ca(CN) <sub>2</sub> . Chemical Category N106)
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed
<b>U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing</b>		
•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed
<b>U.S. - RCRA (Resource Conservation &amp; Recovery Act) - List for Hazardous Constituents</b>		
•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		(listed under Cyanide)
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

## United States - California

### Environment

#### U.S. - California - Proposition 65 - Carcinogens List

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

#### U.S. - California - Proposition 65 - Developmental Toxicity

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed

#### U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca <sub>5</sub> (OH)(PO <sub>4</sub> ) <sub>3</sub> ) (9CI)	1306-06-5	Not Listed



**U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)**

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca5(OH)(PO4)3) (9CI)	1306-06-5	Not Listed

**U.S. - California - Proposition 65 - Reproductive Toxicity - Female**

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca5(OH)(PO4)3) (9CI)	1306-06-5	Not Listed

**U.S. - California - Proposition 65 - Reproductive Toxicity - Male**

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca5(OH)(PO4)3) (9CI)	1306-06-5	Not Listed

**United States - Pennsylvania****Labor****U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List**

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca5(OH)(PO4)3) (9CI)	1306-06-5	Not Listed

**U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances**

•Calcium silicate	1344-95-2	Not Listed
•Silicic acid, aluminum sodium salt	1344-00-9	Not Listed
•Yellow Prusslate of Soda	13601-19-9	Not Listed
•Yellow Prusslate of Soda as Cyanide compounds		Not Listed
•Sodium chloride	7647-14-5	Not Listed
•Hydroxylapatite (Ca5(OH)(PO4)3) (9CI)	1306-06-5	Not Listed

**15.2 Chemical Safety Assessment**

- No Chemical Safety Assessment has been carried out.

**Section 16 - Other Information**

<b>Revision Date</b>	• January 4, 2016
<b>Preparation Date</b>	• January 4, 2016
<b>Disclaimer/Statement of Liability</b>	• The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by use of this material. It is the responsibility of the user to comply with all applicable federal, state, and local laws and regulations. Nothing contained herein is to be construed as a recommendation for use in violation of any patents or of applicable laws or regulations.

**Key to abbreviations**

NDA = No data available