

Specific Hazards Arising from the Chemical

The product causes irritation of eyes, skin and mucous membranes.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Use personal protective equipment as required.

Environmental precautions

Environmental precautions See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Clean-Up Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling Wash thoroughly after handling. Use personal protection recommended in Section 8. Do not breathe dust/fume/gas/mist/vapors/spray. Keep/Store away from clothing/incompatible/combustible materials.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up.

Incompatible Materials Strong caustics. Flammable/combustible materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Citric Acid 77-92-9	-	15 mg / m3 (Total)	-

Appropriate engineering controls

Engineering Controls Apply technical measures to comply with the occupational exposure limits.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Wear eye/face protection.

Skin and Body Protection Refer to 29 CFR 1910.138 for appropriate skin and body protection.

Respiratory Protection Refer to 29 CFR 1910.134 for respiratory protection requirements.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid	Odor	Not determined
Appearance	Not determined	Odor Threshold	Not determined
Color	Not determined		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	1.15-1.35	
Melting point / freezing point	Not determined	
Boiling Point / Boiling Range	Not determined	
Flash Point	Not determined	
Evaporation Rate	Not determined	
Flammability (Solid, Gas)	Liquid-Not applicable	
Flammability Limit in Air		
Upper Flammability Limit	Not determined	
Lower Flammability Limit	Not determined	
Vapor Pressure	Not determined	
Vapor Density	Not determined	
Relative Density	1.15-1.25	
Water Solubility	Not determined	
Solubility in other solvents	Not determined	
Partition Coefficient	Not determined	
Autoignition temperature	Not determined	
Decomposition Temperature	Not determined	
Kinematic Viscosity	Not determined	
Dynamic Viscosity	Not determined	
Explosive Properties	Not determined	
Oxidizing Properties	Not determined	

10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions.

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to Avoid

Keep out of reach of children.

Incompatible Materials

Strong caustics. Flammable/combustible materials.

Hazardous Decomposition Products

None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Eye Contact Causes severe eye damage.

Skin Contact	Causes severe skin burns.
Inhalation	Avoid breathing vapors or mists.
Ingestion	Ingestion may cause irritation to mucous membranes.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Calcium nitrate tetrahydrate 13477-34-4	= 3900 mg/kg (Rat)	-	-
Potassium Nitrate 7757-79-1	= 3015 mg/kg (Rat)	-	-
Citric Acid 77-92-9	= 3 g/kg (Rat) = 3000 mg/kg (Rat)	-	-
L-Pyroglutamic Acid 98-79-3	> 1 g/kg (Rat)	-	-

Information on physical, chemical and toxicological effects

Symptoms Please see section 4 of this SDS for symptoms.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Carcinogenicity Nitrate or nitrite ingested under conditions that result in endogenous nitrosation are considered IARC group 2A carcinogens.

Chemical Name	ACGIH	IARC	NTP	OSHA
Calcium nitrate tetrahydrate 13477-34-4		Group 2A		X
Potassium Nitrate 7757-79-1		Group 2A		X

Legend

IARC (International Agency for Research on Cancer)

Group 2A - Probably Carcinogenic to Humans

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X - Present

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document.

ATEmix (oral) 10,815.00 mg/kg

12. ECOLOGICAL INFORMATION**Ecotoxicity**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Component Information

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Citric Acid 77-92-9		1516: 96 h <i>Lepomis macrochirus</i> mg/L LC50 static	120: 72 h <i>Daphnia magna</i> mg/L EC50

Persistence/Degradability

Not determined.

Bioaccumulation

Not determined.

Mobility

Chemical Name	Partition Coefficient
Citric Acid 77-92-9	-1.72

Other Adverse Effects

Not determined

13. DISPOSAL CONSIDERATIONS**Waste Treatment Methods**

Disposal of Wastes Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging Disposal should be in accordance with applicable regional, national and local laws and regulations.

California Hazardous Waste Status

Chemical Name	California Hazardous Waste Status
Potassium Nitrate 7757-79-1	Ignitable Reactive

14. TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

DOT Not regulated

IATA Not regulated

IMDG Not regulated

15. REGULATORY INFORMATION**International Inventories**

Chemical Name	TSCA	DSL/NDSL	EINECS/E LINCS	ENCS	IECSC	KECL	PICCS	AICS
Calcium nitrate tetrahydrate				X	X		X	X
Potassium Nitrate	X	X	X	X	X	X	X	X
Citric Acid	X	X	X	X	X	X	X	X
L-Pyroglutamic Acid	X	X	X	X	X	X	X	X

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

US Federal Regulations**CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

SARA 313

Chemical Name	CAS No.	Weight-%	SARA 313 - Threshold Values %
Calcium nitrate tetrahydrate - 13477-34-4	13477-34-4	24	1.0
Potassium Nitrate - 7757-79-1	7757-79-1	4.3	1.0

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

US State Regulations**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Calcium nitrate tetrahydrate 13477-34-4	X		
Potassium Nitrate 7757-79-1	X	X	X

16. OTHER INFORMATION**NFPA**

Health Hazards 3

Flammability 0

Instability 0

Special Hazards

Not determined

HMIS

Health Hazards

Flammability

Physical hazards

Personal Protection

Not determined

Not determined

Not determined

Not determined

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Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet