



SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
US OSHA

Revision date 27-Dec-2022

Supersedes Date: 08-Dec-2018

Revision Number 2

1. Identification

Product identifier

Product Name Tricalcium Phosphate

Other means of identification

Product Code(s) 3077

Synonyms Hydroxylapatite, HAP

Recommended use of the chemical and restrictions on use

Recommended use Food ingredient

Restrictions on use Uses other than those recommended.

Details of the supplier of the safety data sheet

Supplier Address

ICL
622 Emerson Road - Suite 500
St. Louis, Missouri 63141, USA
Tel: (314) 983-7884
e-mail: msdsinfo@icl-group.com

Emergency telephone number

Emergency Telephone Chemtrec 1-800-424-9300

2. Hazard(s) identification

Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Hazards not otherwise classified (HNOC)

Not applicable

Label elements

Hazard statements

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

The product contains no substances which at their given concentration, are considered to be hazardous to health.

Appearance Powder

Physical state Solid

Odor Odorless

Other information

No information available

3. Composition/information on ingredients**Substance****Synonyms** Hydroxylapatite, HAP

Chemical name	CAS No	Weight-%	Trade secret
Tricalcium Phosphate	1306-06-5	100	*

*The exact percentage (concentration) of composition has been withheld as a trade secret.

Hydroxylapatite (CAS: 1306-06-5) and Calcium Hydroxide Phosphate (CAS: 12167-74-7) are both synonyms for commercially referenced "Tricalcium Phosphate" with both CAS numbers referencing $\text{Ca}_5(\text{OH})(\text{PO}_4)_3$.

4. First-aid measures**Description of first aid measures**

General advice	Take a copy of the Safety Data Sheet when going for medical treatment. Before seeking medical attention remove contaminated clothing and shoes.
Inhalation	Remove to fresh air.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin contact	Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.
Ingestion	Rinse mouth Get medical attention if symptoms occur NOTE: Never give an unconscious person anything to drink

Most important symptoms and effects, both acute and delayed

Symptoms	Dust particles may cause mechanical irritation. Inhalation of dust in high concentration may cause irritation of respiratory system. May cause mild irritation to the eyes.
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Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically and supportively.
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5. Fire-fighting measures

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Dry powder, carbon dioxide or water spray.
Large Fire	Foam.
Unsuitable extinguishing media	Full water jet.
Specific hazards arising from the chemical	May emit toxic fumes under fire conditions.
Hazardous combustion products	Phosphorus oxides.
Explosion data	

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Cool containers with water spray. Contain runoff to prevent entry into water or drainage systems.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid generation of dust. Avoid contact with skin, eyes, and clothing. Use personal protective equipment as required.

Methods and material for containment and cleaning up

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

Methods for cleaning up Collect mechanically. Avoid dust formation. Pick up and transfer to properly labeled containers.

Reference to other sections See section 8 for more information. See section 13 for more information.

7. Handling and storage

Precautions for safe handling

Advice on safe handling Ensure adequate ventilation. Avoid generation of dust. Avoid breathing dust. Avoid contact with eyes, skin and clothing. Wear appropriate safety clothing and eye/face protection (see Section 8). In case of insufficient ventilation, wear suitable respiratory equipment.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep container tightly closed in a dry and well-ventilated place. Keep away from Incompatible materials.

8. Exposure controls/personal protection

Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
Tricalcium Phosphate 1306-06-5	-	-	-

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection	Tight sealing safety goggles.
Hand protection	Wear suitable gloves
Skin and body protection	Lightweight protective clothing.
Respiratory protection	Not normally required; In case of dust formation use an approved particulate respirator. Dust proof mask - particle filter, mask filter.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Take off contaminated clothing and wash it before reuse.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder
Color	White
Odor	Odorless
Odor threshold	Not determined

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	7.3	(1% aqueous solution)
Melting point / freezing point	1670 °C / 3038 °F	
Boiling point / boiling range	No data available	None known
Flash point	No data available	None known
Evaporation rate	No data available	
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapor pressure	No data available	
Vapor density	No data available	Not determined
Relative density	0.50	
Water solubility	Practically insoluble 2 mg/100ml	
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	Not determined
Decomposition temperature		
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	

Other information

Explosive properties	Not explosive
Oxidizing properties	Not oxidising
Softening point	No information available
Molecular weight	No information available
VOC content	No information available
Liquid Density	No information available
Bulk density	No information available

10. Stability and reactivity

Reactivity	No reactive hazards known/expected.
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Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	None under normal processing.
Conditions to avoid	Exposure to moisture.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Phosphorus oxides.

11. Toxicological information

Information on likely routes of exposure

Product Information

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms See section 4.

Acute toxicity

Numerical measures of toxicity

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Tricalcium Phosphate 1306-06-5	>10,000 mg/kg (Rat)	>7,940 mg/kg (Rabbit)	-

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

Skin corrosion/irritation Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation Based on available data, the classification criteria are not met.

Respiratory or skin sensitization Based on available data, the classification criteria are not met

Germ cell mutagenicity Based on available data, the classification criteria are not met

Carcinogenicity Based on available data, the classification criteria are not met
The table below indicates whether each agency has listed any ingredient as a carcinogen

Chemical name	ACGIH	IARC	NTP	OSHA
Tricalcium Phosphate 1306-06-5	-	-	-	-

Reproductive toxicity Based on available data, the classification criteria are not met.

STOT - single exposure	Based on available data, the classification criteria are not met.
STOT - repeated exposure	Based on available data, the classification criteria are not met
Aspiration hazard	Not expected.
Other adverse effects	No information available.

12. Ecological information

Ecotoxicity	Based on available data, the classification criteria are not met.
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Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Tricalcium Phosphate 1306-06-5	-	-	-	-

Persistence and degradability	Not relevant for inorganic salts. Easy elimination possible by flocculation or adsorption by sludge.
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Bioaccumulation	Not expected to bioaccumulate.
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Chemical name	Partition coefficient
Tricalcium Phosphate 1306-06-5	-

Mobility in soil	No information available.
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Other adverse effects	Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.
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13. Disposal considerations

Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.
Contaminated packaging	Empty containers should be disposed of in accordance with all applicable laws and regulations.

14. Transport information

<u>DOT</u>	Not regulated
<u>TDG</u>	Not regulated
<u>MEX</u>	Not regulated
<u>IATA</u>	Not regulated

IMDG

Not regulated

15. Regulatory information**International Inventories**

GHS hazardous component CAS registry numbers appearing in section 3 may differ from substances appearing in section 15 due to country or regional chemical inventory coverage requirements, however, remain in compliance with the inventory. Products that are used as food additives are exempt from listing in international chemical inventories.

For further details on the regulatory status for this product in a specific country, please send your inquiry to the following email address: msdsinfo@icl-group.com

Chemical name	TSCA Inventory List Active/Inactive
Tricalcium Phosphate 1306-06-5 (100)	Present (ACTIVE)
TSCA	Listed or exempted
DSL	Listed or exempted
ENCS	Listed or exempted
IECSC	Listed or exempted
KECL	Listed or exempted
PICCS	Listed or exempted
AIIC	Listed or exempted
NZIoC	Not Listed
TCSI	Listed or exempted
NCI	Listed or exempted
TECI	Listed or exempted
NSQ	Listed or exempted

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL - Canadian Domestic Substances List
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
AIIC - Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals
TCSI - Taiwan Chemical Substance Inventory
NCI - Vietnam National Chemicals Inventory
TECI - Thailand Inventory FDA Existing Chemicals
NSQ - Mexico National Inventory of Chemical Substances

US Federal Regulations

Chemical name	U.S. - TSCA (Toxic Substances Control Act) - Section 5(a)(2) - Chemicals with Significant New Use Rules (SNURs)
Tricalcium Phosphate - 1306-06-5	-

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Chemical name	SARA 313 - Threshold Values %
Tricalcium Phosphate - 1306-06-5	-

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

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).

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Tricalcium Phosphate 1306-06-5	-	-	-	-

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). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	Reportable Quantity (RQ)
Tricalcium Phosphate 1306-06-5	-	-	

US State Regulations**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated under applicable state right-to-know regulations

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. Other information

NFPA	Health hazards 0	Flammability 0	Instability 0	Special hazards -
HMIS	Health hazards 0	Flammability 0	Physical hazards 0	Personal protection X

Key or legend to abbreviations and acronyms used in the safety data sheet**Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
 U.S. Environmental Protection Agency ChemView Database
 European Food Safety Authority (EFSA)
 EPA (Environmental Protection Agency)
 Acute Exposure Guideline Level(s) (AEGL(s))
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
 U.S. Environmental Protection Agency High Production Volume Chemicals
 Food Research Journal
 Hazardous Substance Database
 International Uniform Chemical Information Database (IUCLID)
 National Institute of Technology and Evaluation (NITE)
 Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
 NIOSH (National Institute for Occupational Safety and Health)
 National Library of Medicine's ChemID Plus (NLM CIP)

National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

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Revision Note

The symbol (***) in the margin of this SDS indicates that this line has been revised.

Disclaimer

Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, we make no representations as to the completeness or accuracy thereof. Information is supplied to you upon the condition that the persons receiving the information will make their own determination as to its safety and suitability for their purposes prior to use. In no event will we be responsible for damages of any nature whatsoever resulting from the use of or reliance upon the information. In addition, we shall not be liable for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices or from any hazards inherent in the nature of the product.

End of Safety Data Sheet