Material Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Identification

Product Name: Tetrapotassium Pyrophosphate Anhydrous (TKPP)
Reference Number: AST10058
Date: 29 April 2003

Use of substance or preparation

Food ingredient, coating ingredient.

Company/Undertaking Identification

Worldwide Headquarters
ASTARIS LLC
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St. Louis, Missouri 63141

Europe Headquarters
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In USA call CHEMTREC: 1 800 424 9300
In Canada call CANUTEC: 1 613 996 6666

General Information: +39 (0) 2 921 02442 (Europe)
+1 800 244 6169 (Worldwide)

2. COMPOSITION/INFORMATION ON INGREDIENTS

Composition

Substance	CAS No.	% w/w	EINECS No	Risk Phrase
Tetrapotassium Pyrophosphate	7320-34-5	97 +	230-785-7	R36/37/38

3. HAZARDS IDENTIFICATION

Classification of the substance/preparation

EC Classifications none
Safety phrase S26 S36

Human Health Effects

May cause skin, eye, and respiratory tract irritation. May cause gastrointestinal irritation with nausea, vomiting and diarrhea.

Environmental Effects

This material is not expected to produce any significant adverse environmental effects when recommended use instructions are followed. May cause temporary algal bloom.

WARNING STATEMENTS

NO SIGNIFICANT HAZARDS ASSOCIATED WITH THIS MATERIAL

4. FIRST AID MEASURES

General

Treatment is systematic and supportive. This product may cause eye, skin, and respiratory tract irritation. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. No significant adverse effects are expected to develop if small amounts are swallowed. Inhalation of this dust may cause coughing and sneezing.

Eye Contact

Immediately flush the eyes with plenty of water. Seek medical attention if needed. This dry powder may cause foreign body irritation in some individuals.

Skin contact

Remove this material from skin with plenty of soap and water. Prolonged contact with dry powder may cause drying or chapping of the skin.

Inhalation

Inhalation of the dust may cause coughing and sneezing. Remove to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Ingestion

Do NOT induce vomiting. If conscious and alert, give plenty of water to drink. Never give anything by mouth to an unconscious person. No significant health effects are expected if small amounts (less than a mouthful) are swallowed.

5. FIRE FIGHTING MEASURES

Extinguishing media

Non-combustible
No special requirement
To extinguish fire use water spray, dry chemical, carbon dioxide, or appropriate foam

Unsuitable extinguishable media

Non-combustible
No special requirement.

Exposure hazards

No special considerations

Protective equipment

As a general precaution, firefighters and others exposed, wear self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Avoid unnecessary exposure and remove all material from eyes, skin and clothing.

Environmental precautions

Small quantities: Avoid discharge into the environment
Large quantities: Avoid discharge into the environment

Method for cleaning up

Sweep, scoop or vacuum spill material, contaminated soil and other contaminated material and place in clean, dry containers for removal. If possible, complete cleanup on a dry basis. Residual material can be flushed with water.

7. HANDLING AND STORAGE

Handling:

Handle in accordance with good industrial hygiene and safety practices.
Use good industrial practice to avoid eye contact.
Wear protective gloves and wash hands immediately after handling
Remove material from clothing.
Avoid breathing dust.

Engineering measures

Ensure adequate ventilation to keep dust concentrations below occupational exposure limit.

Storage

Store in cool, dry place to maintain product performance. Product is hygroscopic and should be stored in a dry area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure limit

ACGIH TLV 10 mg/m^3 (inhalable) 8-hr TWA, 3 mg/m^3 (respirable) 8-hr TWA
OSHA PEL 15 mg/m^3 (total dust) 8-hr TWA, 5 mg/m^3 (respirable) 8-hr TWA

OSHA and ACGIH have not established specific exposure limits for this material. However, OSHA and ACGIH have established limits for particulates not otherwise regulated (PNOR) and particulates not otherwise classified (PNOC) which are the least stringent exposure limits applicable to dusts.

Respiratory protection

Avoid breathing dust. In case of insufficient ventilation, use approved respiratory protective equipment as described in U.S. OSHA 29 CFR 1910.134 or European Standard EN149.

Hand/Skin protection

Wear protective gloves is recommended; wash hands and contaminated skin thoroughly after handling.

Eye protection

Wear appropriate protective eyeglasses or chemical safety goggles as described in U.S. OSHA 29 CFR 1910.133 or European Standard EN166.

9. PHYSICAL AND CHEMICAL PROPERTIES

General Information

Chemical Formula:	$K_4P_2O_7$
Form:	Granules or powder
Color:	White
Odor:	Odorless

Important health, safety and environmental information

pH:	10.2 - 10.7 (as a 1% solution)
Solubility in Water:	187g/100 g. H_2O (@ 25 ^oC)
Bulk Density	0.96 – 1.2 g/cc

Other Information

Melting point	begins to melt incongruently at 641.5 ^oC completely melted at 1,109 ^oC
Flash point	not available
Lower and upper explosion limits (UEL/LEL)	not available

These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

10. STABILITY AND REACTIVITY

Product is stable under normal conditions of storage and handling. Store in a cool, dry place to maintain product performance.

Conditions to avoid

Incompatibles – store away from moisture

Materials to avoid

Strong oxidizing agents, moisture, ammonia, magnesium. sodium, and calcium. Solutions of this product are corrosive to aluminum.

Hazardous decomposition

Oxides of phosphorus.

11. TOXICOLOGICAL INFORMATION

Laboratory data

Data from Astaris single-dose (acute) animal studies with this material are given below:

Oral - rat LD50:	> 2980 mg/kg; slightly toxic
Dermal - rabbit LD50:	> 7940 mg/kg; practically nontoxic
Eye Irritation - rabbit:	11.1/110.0; moderately irritating
Skin Irritation - rabbit:	0.5/8.0 (24-hr exposure); practically nonirritating

This material has been defined as a hazardous chemical under the criteria of the U.S. OSHA Hazard Communication Standard (29 CFR 1910.1200).

The dry material may cause foreign body irritation in some individuals. Prolonged contact with the dry material may cause drying or chapping of the skin. Excessive inhalation of dust may be annoying and can mechanically impede respiration.

Following repeated exposure (13-weeks) to this product in their food, kidney damage with changes in body weight, food consumption, clinical parameters and organ weights were reported at high-dose levels in rats.

12. ECOLOGICAL INFORMATION

Environmental toxicity

The following data have been classified using the criteria adopted by the European Economic Community (EEC) for aquatic organism toxicity

48-hr EC50 Daphnia magna:	> 100 mg/l, Practically Nontoxic
96-hr LC50 Mysid Shrimp	> 100 mg/l, Practically Nontoxic
96-hr LC50 Rainbow trout:	> 100 mg/l, Practically Nontoxic

Environmental fate

This product is considered to have low toxicity to aquatic and estuarine species. Inorganic phosphates, including this product, at high concentrations in the environment have the potential to cause eutrophication in aquatic systems. This condition is characterized by excessive algal growth, and subsequent decreases in oxygen levels. In general, proper use and disposal of this product should pose no adverse ecological risk.

Inorganic compounds in contact with the soil, sub-surface or surface waters may be taken up by plants and utilized as essential nutrients. Phosphates may also form precipitates, usually with calcium or magnesium. The resultant compounds are insoluble in water and become a part of the soil or sediment. The term biodegradability, as such, is not applicable to inorganic compounds.

13. DISPOSAL CONSIDERATIONS

European waste catalog number

Unknown

Disposal considerations

This material when discarded is not a hazardous waste as that term is defined by the U.S. Resource, Conservation and Recovery Act (RCRA), 40 CFR 261. Dry material may be land filled or recycled in accordance with local, state and federal regulations. Consult your attorney or appropriate regulatory officials for information on such disposal.

14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

Road/Rail, Sea and Air

IMDG/UN	Not classified
ICAO/IATA	Not classified
RID/ADR	Unknown
Canadian TDG	Not classified
U.S. DOT	Not classified

15. REGULATORY INFORMATION

EC Label

Hazard symbol:	none
Risk phrase	R36/37/38 – irritating to eyes, respiratory system and skin.

Safety phrase S26 – In case of contact with eyes, immediately flush with plenty of water and seek medical attention
S36 – Wear suitable protective clothing

Chemical Inventory

USA TSCA:	Listed
Canada DSL:	Listed
EC:	Listed
Japan	Listed
Australia	Listed
Korea	Listed
Philippines	Listed
China	Listed

Additional information

WHMIS Classification Not Controlled

SARA Hazard Notification

Hazard Categories Under Title III Rules (40 CFR 370):	None
Section 302 Extremely Hazardous Substances:	None
Section 313 Toxic Chemical(s):	None
CERCLA Reportable Quantity:	Not applicable

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation and the MSDS contains all the information required by the Canadian Controlled Products Regulation.

Refer to Section 11 for OSHA Hazardous Chemical(s) and Section 13 for RCRA classification.

16. OTHER INFORMATION

	Health	Fire	Reactivity	Additional Information
Suggested NFPA Rating	1	0	0	
Suggested HMIS Rating	1	0	0	E E = safety glasses, gloves, and dust respirator

Reason for revision: MSDS review Supersedes MSDS dated: April 18, 2002
Drafted in accordance with ECC Dir 2001/58/EC