



MATERIAL SAFETY DATA SHEET

Sodium Dihydrogen Phosphate, Dihydrate

1. Product Identification

Synonyms: Sodium phosphate monobasic, dihydrate; Sodium biphosphate, dihydrate;
Sodium acid phosphate, dihydrate; Sodium dihydrogen phosphate, dihydrate

CAS No.: 13472-35-0

Molecular Weight: 156.01

Chemical Formula: $\text{NaH}_2\text{PO}_4 \cdot 2\text{H}_2\text{O}$

Product Codes: S192

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Sodium di-Hydrogen Phosphate, dihydrate	13472-35-0	98 - 100%	Yes

3. Hazards Identification

EMERGENCY OVERVIEW

CAUTION!! MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.
MAY BE HARMFUL IF SWALLOWED OR INHALED.

Health Rating: 2 - Moderate (Life)

Flammability Rating: 0 - None

Reactivity Rating: 1 - Slight

Contact Rating: 2 - Moderate

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER

Storage Color Code: Green (General Storage)

Potential Acute Health Effects:

Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Inhalation:

May cause irritation to the respiratory tract. Symptoms may include coughing and shortness of breath.

Ingestion:

Phosphates are slowly and incompletely absorbed when ingested, and seldom result in systemic effects. Such effects, however, have occurred. Symptoms may include vomiting,

lethargy, diarrhea, blood chemistry effects, heart disturbances and central nervous system effects. The toxicity of phosphates is because of their ability to sequester calcium.

Skin Contact:

Irritant due to its acidic nature. May cause inflammation and pain on prolonged contact, especially with moist skin.

Eye Contact:

May cause irritation, redness and pain.

Potential Chronic Health Effects:

May sequester calcium and cause calcium phosphate deposits in the kidneys.

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available.

TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available.

Repeated or prolonged exposure is not known to aggravate medical condition

Aggravation of Pre-existing Conditions:

No information found.

4. **First Aid Measures**

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention for any breathing difficulty.

Serious Inhalation:

Not available.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention.

Skin Contact:

Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash with soap and water. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops.

Serious Skin Contact:

Not available.

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

5. **Fire Fighting Measures**

Fire:

Not considered to be a fire hazard.

Explosion:

Not considered to be an explosion hazard.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available

Special Remarks on Explosion Hazards:

Not available.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire.

Products of Combustion:

When heated to decomposition emits toxic fumes of phosphoxides and sodium oxide.

Fire Hazards in Presence of Various Substances:

Not applicable.

Special Information on Fire Hazards:

Not available.

Fire Fighting Media and Instructions:

Not applicable.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures**Small Spill:**

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:

Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

7. Handling and Storage**Precautions:**

Do not ingest. Do not breathe dust. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as acids, alkalis.

Storage:

Keep container tightly closed. Keep container in a cool, well-ventilated area.

8. Exposure Controls/Personal Protection**Airborne Exposure Limits:**

None established.

Ventilation System:

In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:

Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Personal Respirators:

For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear protective gloves and clean body-covering clothing.

Eye Protection:

Safety glasses. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties**Appearance:**

White crystalline powder.

Odor:

Odorless.

Solubility:

Very soluble in water.

Density:

1.92.

pH:

No information found.

% Volatiles by volume @ 21C (70F):

0.

Boiling Point:

No information found.

Melting Point:

60C (140F).

Vapor Density (Air=1):

No information found.

Vapor Pressure (mm Hg):

No information found.

Molecular Weight:

156.01

Evaporation Rate (BuAc=1):

No information found.

10. **Stability and Reactivity**

Stability:

Stable under ordinary conditions of use and storage.

Conditions to Avoid:

No information found.

Conditions of Instability:

Incompatible materials, excess heat, dust generation.

Incompatibilities:

Reactive with acids, alkalis.

Hazardous Decomposition

Phosphorus oxides may form when heated to decomposition.

Special Remarks on Reactivity:

It is a neutralizing agent for acids and caustics. Also incompatible with magnesium and methenamine, and carbonates.

Corrosivity:

Non-corrosive in presence of glass.

Special Remarks on Corrosivity:

When wet, mild steel or brass may be corroded.

Hazardous Polymerization:

Will not occur.

11. **Toxicological Information**

Routes of Entry:

Inhalation. Ingestion.

Toxicity to Animals:

Acute oral toxicity (LD50): 8290 mg/kg [Rat].

Chronic Effects on Humans:

Not available.

Other Toxic Effects on Humans:

Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Chronic Effects on Humans:

Not available.

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects:

Skin:

May cause skin irritation.

Eyes:

Dust may cause eye irritation.

Inhalation:

It is considered a low hazard for usual industrial handling. Dust may cause respiratory tract irritation and may affect respiration (mechanically impede respiration).

Ingestion:

It is considered a low hazard for usual industrial handling and systemic reactions are unlikely when ingested (because they are slowly and incompletely absorbed in the intestinal tract). The most frequently seen effect is gastrointestinal irritation with abdominal pain and cramping, vomiting, diarrhea. If a significant amount of phosphate is absorbed, the following may occur: mineral imbalance in the body, adversely affecting the osmotic pressure of body fluids resulting in hyperphosphatemia, hypocalcemia,

hypomagnesemia. Severe hyperphosphatemia and hypocalcemia may result in tetany, seizures, severe dehydration, metabolic acidosis, hypernatremia, lethargy, and hyperpyrexia, carpal spasm, and possible. May also affect the cardiovascular system (hypotension, tachycardia, bradycardia, dysrhythmias). The estimated fatal dose is 50 grams.

Chronic Potential Health Effects:

No information was available.

12. Ecological Information

Ecotoxicity:

Not available

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation:

The product itself and its products of degradation are not toxic.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

14. Transport Information

DOT Classification:

Not a DOT controlled material.

Identification:

Not applicable.

Special Provisions for Transport:

Not available.

Protective Equipment:

Gloves (impervious). Synthetic apron. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

15. Other Information

NFPA Ratings: Health: **1** Flammability: **0** Reactivity: **0**

Label Hazard Warning:

CAUTION! MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. MAY BE HARMFUL IF SWALLOWED OR INHALED.

Label Precautions:

Avoid contact with eyes, skin and clothing.

Wash thoroughly after handling.

Avoid breathing dust.

Keep container closed.

Use with adequate ventilation.

Label First Aid:

If inhaled, remove to fresh air. Get medical attention for any breathing difficulty. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists. If swallowed, give large amounts of water to drink. Never give anything by mouth to an unconscious person. Get medical attention.

Product Use:

Laboratory Reagent.

Revision Information:

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.



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