MATERIAL SAFETY DATA SHEET

Disodium Hydrogen Phosphate, Anhydrous

1. Product Identification

   **Synonyms:** Sodium Phosphate di-Basic  
   **CAS No.:** 7558-79-4  
   **Molecular Weight:** 141.96  
   **Chemical Formula:** Na₂HPO₄  
   **Product Codes:** D192

2. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS No</th>
<th>Percent</th>
<th>Hazardous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disodium Hydrogen Phosphate, Anhydrous</td>
<td>7558-79-4</td>
<td>98 - 100%</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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:**
May cause irritation with redness and pain.

**Eye Contact:**
May cause irritation, redness and pain.

**Potential Chronic Health Effects:**
May sequester calcium and cause calcium phosphate deposits in the kidneys. Chronic ingestion or inhalation may induce systemic phosphorous poisoning. Liver damage, kidney damage, jaw/tooth abnormalities, blood disorders and cardiovascular effects can result. Repeated or prolonged exposure is not known to aggravate medical condition.

**Aggravation of Pre-existing Conditions:**
Persons with pre-existing skin disorders or eye problems, jaw/tooth abnormalities, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance.

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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:**
Give large amounts of water to drink. Never give anything by mouth to an unconscious person. Do NOT induce vomiting unless directed to do so by medical personnel. Get medical attention.

**Skin Contact:**
Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. 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.

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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:
Not available.

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.

7. Handling and Storage

Precautions:
Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. 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. Hygroscopic.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
None established.

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.
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:
Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

- **Appearance:**
  White granular powder. Hygroscopic.

- **Odor:**
  Odorless.

- **Solubility:**
  Soluble in water.

- **Density:**
  2.07 @ 15C/4C.

- **pH:**
  9.1 [Basic].

- **% Volatiles by volume @ 21C (70F):**
  0.

- **Boiling Point:**
  Not applicable.

- **Melting Point:**
  240C (464F) Converts to Na₄P₂O₇.

- **Vapor Density (Air=1):**
  4.9 (Air = 1).

- **Vapor Pressure (mm Hg):**
  No information found.

- **Molecular Weight:**
  141.96
Evaporation Rate (BuAc=1):
No information found.

10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage.

Conditions to Avoid:
Incompatibles.

Conditions of Instability:
Exposure to moisture and to incompatible materials. When heated to decomposition, it emits toxic fumes of phosphoxides and sodium oxide.

Incompatibilities:
Acids, alkaloids, lead acetate, antipyrine, chloral hydrate, resorcinol and pyrogallol.

Hazardous Decomposition
Sodium and phosphorus oxides may form when heated to decomposition.

Special Remarks on Reactivity:
Hygroscopic; keep container tightly closed. Incompatible with magnesium, alkaloids, antipyrine, chloral hydrate, lead acetate, pyrogallol, resorcinol, strong mineral acids, strong organic acids.

Corrosivity:
Not available.

Hazardous Polymerization:
Will not occur.

11. Toxicological Information

Routes of Entry:
Inhalation. Ingestion.

Toxicity to Animals:
Acute oral toxicity (LD50): 17000 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:
Causes mild skin irritation. May cause dermatitis.

Eyes:
Causes mild eye irritation.

Inhalation:
May cause respiratory tract and mucous membrane irritation. Low hazard for usual industrial handling.

Ingestion:
May cause irritation of the digestive tract and may cause purging. It is slowly absorbed. Expected to be a low ingestion hazard for usual industrial handling. Ingestion of large
doses may affect behavior/central nervous system (tetany). However, if a significant amount of phosphate is absorbed, hypophosphatemia will occur. Severe hypophosphatemia may result in hypocalcemia and tetany. Cardiovascular, respiratory, neurologic, and musculoskeletal effects may occur secondary to hypernatremia, hypophosphatemia, and hypocalcemia.

**Chronic Potential Health Effects:**
Skin: High and repeated exposure may cause dermatitis.

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 available. UNNA: 9147 PG: III

**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.