Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Phosphazene base P1-t-Bu
Product Number: 79408
Brand: Aldrich
Supplier: Sigma-Aldrich
3056 Spruce Street
SAINT LOUIS MO 63103
USA
Telephone: +1 860-325-5822
Fax: +1 860-325-5022
Emergency Phone # (For both supplier and manufacturer): (314) 776-8855
Preparation Information: Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-6596

2. HAZARDS IDENTIFICATION

Emergency Overview
OSHA Hazards
Carcinogen, Target Organ Effect, Corrosive, Mutagen
Target Orans
Kidney, Lungs, Male reproductive system.
GHS Classification
Skin corrosion (Category 1B)
Serious eye damage (Category 1)
Germ cell mutagenicity (Category 1B)
G350 May cause cancer.
GHS Label elements, including precautionary statements
Pictogram
Signal word
Danger
Hazard statement(s)
H314 Causes severe skin burns and eye damage.
H350 May cause cancer.
Precautionary statement(s)
P201 Obtain special instructions before use.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/ physician.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: tert-Butyl/imino-tris(dimethylaminophosphorane)
N'-tert-Butyl-N,N,N',N',N',N''-hexamethylphosphorimidic triamide
Formula: C10H27N4P
Molecular Weight: 234.32 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>N'-tert-Butyl-N,N,N',N',N',N''-hexamethylphosphorimidic triamide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>81675-81-2</td>
<td>Skin Corr. 1B; H314</td>
</tr>
<tr>
<td>Hexamethylphosphorimidic triamide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>660-31-9</td>
<td>Mut. 1B; Carc. 1B; H340, H350</td>
</tr>
<tr>
<td>EC-No.</td>
<td>211-651-8</td>
<td></td>
</tr>
<tr>
<td>Index-No.</td>
<td>015-106-00-02</td>
<td></td>
</tr>
</tbody>
</table>

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Not flammable or combustible.

Suitable extinguishing media
Water Alcohol-resistant foam Dry sodium carbonate
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special protective equipment for firefighters
Wear self-contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx), Phosphorous oxides
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx), Oxides of phosphorus

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid inhalation of vapour or mist.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Moisture sensitive. Sensitive to carbon dioxide

8. EXPOSURE CONTROLS/PERSOAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment
Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEX (EN 14387) respirator canisters as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Tightly fitting safety goggles. Face shield (4-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form: clear

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
no data available

Materials to avoid
Incompatible with strong acids and oxidizing agents.

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx), Phosphorous oxides
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx), Oxides of phosphorus
Other decomposition products: no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity
Oral LD50: no data available
Inhalation LC50: no data available
Dermal LD50: no data available
Other information on acute toxicity
no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
Eyes: no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity
IARC: 2B - Group 2B: Possibly carcinogenic to humans (Hexamethylyphosphoric triamide)
NTP: Reasonably anticipated to be a human carcinogen (Hexamethylyphosphoric triamide)
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Teratogenicity
no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation
May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Ingestion
May be harmful if swallowed.

Skin
May be harmful if absorbed through skin. Causes skin burns.

Eyes
Causes eye burns.

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects
no data available

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

Toxicity
no data available

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2735 Class: 8 Packing group: II Proper shipping name: Polyamines, liquid, corrosive, n.o.s. (N-tert-Butyl-N,N,N',N''-hexamethylyphosphorimide triamide)
Reportable Quantity (RG): 50 lb Marine Pollutant: No Poison Inhalation Hazard: No

IMDG
UN number: 2735 Class: 8 Packing group: II EMS-No: F-A, S-9 Proper shipping name: POLYAMINES, LIQUID, CORROSIVE, N.O.S. (N-tert-Butyl-N,N,N',N''-hexamethylyphosphorimide triamide)
Marine Pollutant: No

IATA
UN number: 2735 Class: 8 Packing group: II Proper shipping name: Polyamines, liquid, corrosive, n.o.s. (N-tert-Butyl-N,N,N',N''-hexamethylyphosphorimide triamide)

15. REGULATORY INFORMATION

OSHA Hazards
Carcinogen, Target Organ Effect, Corrosive, Mutagen

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
<thead>
<tr>
<th>Hexamethylyphosphoric triamide</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>680-31-9</td>
<td>2007-07-01</td>
<td></td>
</tr>
</tbody>
</table>

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

<table>
<thead>
<tr>
<th>Hexamethylyphosphoric triamide</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>680-31-9</td>
<td>2007-07-01</td>
<td></td>
</tr>
</tbody>
</table>

Pennsylvania Right To Know Components

<table>
<thead>
<tr>
<th>Hexamethylyphosphoric triamide</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>81675-81-2</td>
<td>2007-07-01</td>
<td></td>
</tr>
</tbody>
</table>
New Jersey Right To Know Components

Hexamethylphosphoric triamide
N'-tert-Butyl-N,N,N',N'-hexamethylphosphoromido triamide

CAS-No. 680-31-9 81975-81-2
Revision Date 2007-07-31

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.
Hexamethylphosphoric triamide

CAS-No. 680-31-9
Revision Date 2007-09-28

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.
Hexamethylphosphoric triamide

CAS-No. 680-31-9
Revision Date 2007-09-28

16. OTHER INFORMATION

Text of H-code(s) and R-phrase(s) mentioned in Section 3

Carc. Carcinogenicity
H314 Causes severe skin burns and eye damage.
H340 May cause genetic defects.
H350 May cause cancer.
Muta. Germ cell mutagenicity
Skin Corr. Skin corrosion

Further information
Copyright 2012 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a
guide. The information in this document is based on the present state of our knowledge and is applicable to the
product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the
product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or
from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for
additional terms and conditions of sale.