1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifier
   
   Product name: Orotic acid
   Catalog No.: HY-N0157
   CAS No.: 65-86-1

1.2 Relevant identified uses of the substance or mixture and uses advised against
   
   Identified uses: Laboratory chemicals, manufacture of substances.

1.3 Details of the supplier of the safety data sheet
   
   Company: MedChemExpress USA
   Tel: 609-228-6898
   Fax: 609-228-5909
   E-mail: sales@medchemexpress.com

1.4 Emergency telephone number
   
   Emergency Phone #: 609-228-6898

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
   
   GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
   Acute toxicity, Oral (Category 4), H302
   Skin irritation (Category 2), H315
   Eye irritation (Category 2A), H319
   Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

2.2 GHS Label elements, including precautionary statements
   
   Pictogram
   
   Signal word  Warning
   Hazard statement(s)
   H302 Harmful if swallowed.
   H315 Causes skin irritation.
   H319 Causes serious eye irritation.
   H335 May cause respiratory irritation.
   Precautionary statement(s)
   P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
   P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ eye protection/ face protection.
P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312 Call a POISON CENTER or doctor/ physician if you feel unwell.
P321 Specific treatment (see supplemental first aid instructions on this label).
P330 Rinse mouth.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards
None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

<table>
<thead>
<tr>
<th>Synonyms</th>
<th>6-Carboxyuracil; Vitamin B13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formula</td>
<td>C5H4N2O4</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>156.10</td>
</tr>
<tr>
<td>CAS No.</td>
<td>65-86-1</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye contact
Remove any contact lenses, locate eye-wash station, and flush eyes immediately with large amounts of water. Separate eyelids with fingers to ensure adequate flushing. Promptly call a physician.

Skin contact
Rinse skin thoroughly with large amounts of water. Remove contaminated clothing and shoes and call a physician.

Inhalation
Immediately relocate self or casualty to fresh air. If breathing is difficult, give cardiopulmonary resuscitation (CPR). Avoid mouth-to-mouth resuscitation.

Ingestion
Wash out mouth with water; Do NOT induce vomiting; call a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2).

4.3 Indication of any immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE FIGHTING MEASURES
5.1 Extinguishing media
   Suitable extinguishing media
   Use water spray, dry chemical, foam, and carbon dioxide fire extinguisher.

5.2 Special hazards arising from the substance or mixture
   During combustion, may emit irritant fumes.

5.3 Advice for firefighters
   Wear self-contained breathing apparatus and protective clothing.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
   Use full personal protective equipment. Avoid breathing vapors, mist, dust or gas. Ensure adequate ventilation. Evacuate
   personnel to safe areas.
   Refer to protective measures listed in sections 8.

6.2 Environmental precautions
   Try to prevent further leakage or spillage. Keep the product away from drains or water courses.

6.3 Methods and materials for containment and cleaning up
   Absorb solutions with finely-powdered liquid-binding material (diatomite, universal binders); Decontaminate surfaces and
   equipment by scrubbing with alcohol; Dispose of contaminated material according to Section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
   Avoid inhalation, contact with eyes and skin. Avoid dust and aerosol formation. Use only in areas with appropriate exhaust ventilation.

7.2 Conditions for safe storage, including any incompatibilities
   Keep container tightly sealed in cool, well-ventilated area. Keep away from direct sunlight and sources of ignition.
   Recommended storage temperature:  Powder  -20°C  3 years
                                4°C  2 years
   In solvent  -80°C  6 months
               -20°C  1 month
   Shipping at room temperature if less than 2 weeks.

7.3 Specific end use(s)
   No data available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters
   Components with workplace control parameters
   This product contains no substances with occupational exposure limit values.

8.2 Exposure controls
   Engineering controls
   Ensure adequate ventilation. Provide accessible safety shower and eye wash station.
   Personal protective equipment
     Eye protection  Safety goggles with side-shields.
     Hand protection  Protective gloves.
     Skin and body protection  Impervious clothing.
     Respiratory protection  Suitable respirator.
Environmental exposure controls

Keep the product away from drains, water courses or the soil. Clean spillages in a safe way as soon as possible.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>White to off-white (Solid)</td>
</tr>
<tr>
<td>Odor</td>
<td>No data available</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point/range</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2 Other safety information

No data available.

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available.

10.4 Conditions to avoid

No data available.

10.5 Incompatible materials

Strong acids/alkalis, strong oxidising/reducing agents.

10.6 Hazardous decomposition products

Under fire conditions, may decompose and emit toxic fumes.

Other decomposition products - no data available.

11. TOXICOLOGICAL INFORMATION
11.1 Information on toxicological effects

   **Acute toxicity**
   Classified based on available data. For more details, see section 2

   **Skin corrosion/irritation**
   Classified based on available data. For more details, see section 2

   **Serious eye damage/irritation**
   Classified based on available data. For more details, see section 2

   **Respiratory or skin sensitization**
   Classified based on available data. For more details, see section 2

   **Germ cell mutagenicity**
   Classified based on available data. For more details, see section 2

   **Carcinogenicity**
   IARC: No component of this product present at a level equal to or greater than 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

   ACGIH: No component of this product present at a level equal to or greater than 0.1% is identified as a potential or confirmed carcinogen by ACGIH.

   NTP: No component of this product present at a level equal to or greater than 0.1% is identified as a anticipated or confirmed carcinogen by NTP.

   OSHA: No component of this product present at a level equal to or greater than 0.1% is identified as a potential or confirmed carcinogen by OSHA.

   **Reproductive toxicity**
   Classified based on available data. For more details, see section 2

   **Specific target organ toxicity - single exposure**
   Classified based on available data. For more details, see section 2

   **Specific target organ toxicity - repeated exposure**
   Classified based on available data. For more details, see section 2

   **Aspiration hazard**
   Classified based on available data. For more details, see section 2

   **Additional information**
   This information is based on our current knowledge. However the chemical, physical, and toxicological properties have not been completely investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
   No data available.

12.2 Persistence and degradability
   No data available.

12.3 Bioaccumulative potential
   No data available.

12.4 Mobility in soil
   No data available.

12.5 Results of PBT and vPvB assessment
   PBT/vPvB assessment unavailable as chemical safety assessment not required or not conducted.

12.6 Other adverse effects
13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

**Product**
Dispose substance in accordance with prevailing country, federal, state and local regulations.

**Contaminated packaging**
Conduct recycling or disposal in accordance with prevailing country, federal, state and local regulations.

14. TRANSPORT INFORMATION

**DOT (US)**
This substance is considered to be non-hazardous for transport.

**IMDG**
This substance is considered to be non-hazardous for transport.

**IATA**
This substance is considered to be non-hazardous for transport.

15. REGULATORY INFORMATION

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

**SARA 313 Components:**
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards:**
No SARA Hazards.

**Massachusetts Right To Know Components:**
No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components:**
No components are subject to the Pennsylvania Right to Know Act.

**New Jersey Right To Know Components:**
No components are subject to the New Jersey Right to Know Act.

**California Prop. 65 Components:**
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or anyother reproductive harm.

16. OTHER INFORMATION

Copyright 2019 MedChemExpress. The above information is correct to the best of our present knowledge but does not purport to be all inclusive and should be used only as a guide. The product is for research use only and for experienced personnel. It must only be handled by suitably qualified experienced scientists in appropriately equipped and authorized facilities. The burden of safe use of this material rests entirely with the user. MedChemExpress disclaims all liability for any damage resulting from handling or from contact with this product.
Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 609-228-6898  Fax: 609-228-5909  E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA