SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product Description: Creatine, anhydrous
Cat No.: A17477
CAS No: 57-00-1
Molecular Formula: C4 H9 N3 O2
Supplier: Alfa Aesar
Avocado Research Chemicals, Ltd.
Shore Road
Port of Heysham Industrial Park
Heysham, Lancashire LA3 2XY
United Kingdom
Office Tel: +44 (0) 1524 850506
Office Fax: +44 (0) 1524 850608

Emergency Telephone Number
Call Carechem 24 at
+44 (0) 1865 407333 (English only);
+44 (0) 1235 239670 (Multi-language)

E-mail address
uktech@alfa.com
www.alfa.com
Product Safety Department

Recommended Use
Laboratory chemicals.
Uses advised against
No Information available

SECTION 2. HAZARD IDENTIFICATION

Physical State
Solid
Appearance
White
Odor
No information available

Emergency Overview
The product contains no substances which at their given concentration are considered to be hazardous to health.

Classification of the substance or mixture
Based on available data, the classification criteria are not met

Label Elements
None required

Physical and Chemical Hazards
None identified.

Health Hazards
The product contains no substances which at their given concentration are considered to be hazardous to health.

Environmental hazards
Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants. Will likely be mobile in the environment due to its water solubility. The product is water soluble, and may spread in water systems.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycine, N-(aminoiminomethyl)-N-methyl-</td>
<td>57-00-1</td>
<td>&lt;=100</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

**Eye Contact**
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

**Skin Contact**
Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.

**Inhalation**
Remove to fresh air. Get medical attention immediately if symptoms occur.

**Ingestion**
Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

**Most important symptoms and effects**
None reasonably foreseeable.

**Self-Protection of the First Aider**
No special precautions required.

**Notes to Physician**
Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media**
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Extinguishing media which must not be used for safety reasons**
No information available.

**Specific Hazards Arising from the Chemical**
Thermal decomposition can lead to release of irritating gases and vapors.

**Protective Equipment and Precautions for Firefighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions**
Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

**Environmental Precautions**
Should not be released into the environment. See Section 12 for additional Ecological Information.
Methods for Containment and Clean Up
Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

Refer to protective measures listed in Sections 8 and 13.

SECTION 7. HANDLING AND STORAGE

Handling
Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Avoid ingestion and inhalation. Avoid dust formation.

Storage
Keep container tightly closed in a dry and well-ventilated place.

Specific Use(s)
Use in laboratories

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Monitoring methods
BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

Exposure Controls

Engineering Measures
None under normal use conditions.

Personal protective equipment

Eye Protection
Wear safety glasses with side shields (or goggles)  (European standard - EN 166)

Hand Protection
Protective gloves

<table>
<thead>
<tr>
<th>Glove material</th>
<th>Breakthrough time</th>
<th>Glove thickness</th>
<th>EU standard</th>
<th>Glove comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrile rubber</td>
<td>See manufacturers</td>
<td>-</td>
<td>EN 374</td>
<td></td>
</tr>
<tr>
<td>Neoprene</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural rubber</td>
<td></td>
<td></td>
<td></td>
<td>(minimum requirement)</td>
</tr>
<tr>
<td>PVC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.
(Refer to manufacturer/supplier for information)
Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

Skin and body protection
Long sleeved clothing

Respiratory Protection
No protective equipment is needed under normal use conditions.

Large scale/emergency use
Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

Recommended Filter type: Particle filter
Small scale/Laboratory use
Maintain adequate ventilation

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls
No information available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
White

Physical State
Solid

Odor
No information available

Odor Threshold
No data available

pH
No information available

Melting Point/Range
No data available

Softening Point
No data available

Boiling Point/Range
No information available

Flash Point
No information available

Evaporation Rate
Not applicable

Flammability (solid,gas)
No information available

Explosion Limits
No data available

Vapor Pressure
No data available

Vapor Density
Not applicable

Specific Gravity / Density
1.33 g/cm³

Bulk Density
No data available

Water Solubility
Soluble in water

Solubility in other solvents
No information available

Partition Coefficient (n-octanol/water)
No data available

Autoignition Temperature
No data available

Decomposition Temperature
No data available

Viscosity
Not applicable

Explosive Properties
No information available

Oxidizing Properties
No information available

Molecular Formula
C4 H9 N3 O2

Molecular Weight
131.13

SECTION 10. STABILITY AND REACTIVITY

Stability
Stable under normal conditions.

Hazardous Reactions
None under normal processing.

Hazardous Polymerization
No information available.

Conditions to Avoid
None known.

Materials to avoid
No information available.

Hazardous Decomposition Products
None under normal use conditions.

SECTION 11. TOXICOLOGICAL INFORMATION

Product Information

(a) acute toxicity;
(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; No data available

(d) respiratory or skin sensitization;  
    Respiratory No data available  
    Skin No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available  
There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; No data available

<table>
<thead>
<tr>
<th>Target Organs</th>
<th>No information available.</th>
</tr>
</thead>
</table>

(j) aspiration hazard; Not applicable  
    Solid

Symptoms / effects, both acute and delayed No information available

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**SECTION 12. ECOLOGICAL INFORMATION**

**Ecotoxicity effects** Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants.

**Persistence and Degradability**  
**Persistence** Soluble in water, Persistence is unlikely, based on information available.

**Bioaccumulative Potential** Bioaccumulation is unlikely

**Mobility in soil** The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

**Endocrine Disruptor Information**  
**Persistent Organic Pollutant** This product does not contain any known or suspected endocrine disruptors  
**Ozone Depletion Potential** This product does not contain any known or suspected substance

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**SECTION 13. DISPOSAL CONSIDERATIONS**

**Waste from Residues/Unused** Chemical waste generators must determine whether a discarded chemical is classified as a
Creatine, anhydrous

Products

hazardous waste. Consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Contaminated Packaging

Empty remaining contents. Dispose of in accordance with local regulations. Do not re-use empty containers.

Other Information

Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14. TRANSPORT INFORMATION

Road and Rail Transport

Not Regulated

IMDG/IMO

Not regulated

IATA

Not regulated

Special Precautions for User

No special precautions required

SECTION 15. REGULATORY INFORMATION

International Inventories

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), Korea (KECL).

<table>
<thead>
<tr>
<th>Component</th>
<th>The Inventory of Hazardous Chemicals (2015 Edition)</th>
<th>List of dangerous goods GB 12268 - 2012</th>
<th>TCSI</th>
<th>IECSC</th>
<th>EINECS</th>
<th>TSCA</th>
<th>DSL</th>
<th>PICCS</th>
<th>ENCS</th>
<th>ISHL</th>
<th>AICS</th>
<th>KECL</th>
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</thead>
<tbody>
<tr>
<td>Glycine, N-(aminoiminomethyl)-N-methyl-</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>200-306-6</td>
<td>X</td>
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<td>-</td>
<td>X</td>
<td>X</td>
<td>KE-24130</td>
<td></td>
</tr>
</tbody>
</table>

National Regulations

SECTION 16. OTHER INFORMATION

Prepared By

Health, Safety and Environmental Department

Revision Date

12-Feb-2021

Revision Summary

Not applicable.

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Legend

CAS - Chemical Abstracts Service
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
SAFETY DATA SHEET
Creatine, anhydrous

Key literature references and sources for data
https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Disclaimer
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End of Safety Data Sheet