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

Product Description: alpha-Ionone
Cat No.: A17098
CAS-No: 127-41-3
Molecular Formula: C13 H20 O
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
Liquid
Appearance
Colorless
Odor
No information available

Emergency Overview
Highly flammable liquid and vapor. Extremely flammable liquid and vapor.

Classification of the substance or mixture
Flammable liquids. Category 2 Category 1

Label Elements
Signal Word
Danger
Hazard Statements
H225 - Highly flammable liquid and vapor
H224 - Extremely flammable liquid and vapor

Precautionary Statements
Storage
P403 - Store in a well-ventilated place
Disposal
P501 - Dispose of contents/container to an approved waste disposal plant

Physical and Chemical Hazards
Highly flammable. Vapors may cause flash fire or explosion. Extremely flammable.

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.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ionone, (\alpha)-Ionone</td>
<td>127-41-3</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.

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.

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.

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

Exposure Controls

Engineering Measures
None under normal use conditions.

Personal protective equipment

<table>
<thead>
<tr>
<th>Eye Protection</th>
<th>Hand Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wear safety glasses with side shields (or goggles) (European standard - EN 166)</td>
<td>Protective gloves</td>
</tr>
</tbody>
</table>

<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>(minimum requirement)</td>
</tr>
<tr>
<td>Neoprene</td>
<td>recommendations</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural rubber</td>
<td></td>
<td>-</td>
<td></td>
<td></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

Relevant Filter type:  Particle filter 2

Small scale/Laboratory use  Maintain adequate ventilation

Recommended half mask:  Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141

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

Environmental exposure controls  No information available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Colorless</td>
</tr>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>No data available</td>
</tr>
<tr>
<td>Softening Point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>237 °C / 458.6 °F</td>
</tr>
<tr>
<td>Flash Point</td>
<td>117 °C / 242.6 °F Method - No information available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid,gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosion 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  (Air = 1.0)</td>
</tr>
<tr>
<td>Specific Gravity / Density</td>
<td>0.931 g/cm³</td>
</tr>
<tr>
<td>Bulk Density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>No information available</td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No information available</td>
</tr>
<tr>
<td>Partition Coefficient (n-octanol/water)</td>
<td>No data available</td>
</tr>
<tr>
<td>Autoignition 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 information available</td>
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<tr>
<td>Oxidizing Properties</td>
<td>No information available</td>
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<tr>
<td>Molecular Formula</td>
<td>C13 H20 O</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>192.30</td>
</tr>
</tbody>
</table>

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
   Target Organs No information available.
(j) aspiration hazard; No data available
Symptoms / effects, both acute and delayed
No information available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity effects
.

Persistence and Degradability
No information available

Bioaccumulative Potential
No information available

Mobility in soil
No information available
**Endocrine Disruptor Information**
This product does not contain any known or suspected endocrine disruptors

**Persistent Organic Pollutant**
This product does not contain any known or suspected substance

**Ozone Depletion Potential**
This product does not contain any known or suspected substance

### SECTION 13. DISPOSAL CONSIDERATIONS

#### Waste from Residues/Unused Products
Chemical waste generators must determine whether a discarded chemical is classified as a 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), Australia (AICS), Korea (ECL).

<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>Taiwan Toxic Chemicals Inventory</th>
<th>IECSC</th>
<th>EINECS</th>
<th>TSCA</th>
<th>DSL</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>KECL</th>
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</thead>
<tbody>
<tr>
<td>Ionone, .alpha. (.alpha.-Ionone)</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>204-841-6</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>KE-3446 8</td>
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</tbody>
</table>

### SECTION 16. OTHER INFORMATION

**Prepared By**
Health, Safety and Environmental Department

**Revision Date**
04-Feb-2021

**Revision Summary**
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
PICCS - Philippines Inventory of Chemicals and Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
WEL - Workplace Exposure Limit
ACGIH - American Conference of Governmental Industrial Hygienists
DNEL - Derived No Effect Level
RPE - Respiratory Protective Equipment
LC50 - Lethal Concentration 50%
NOEC - No Observed Effect Concentration
PBT - Persistent, Bioaccumulative, Toxic
ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
OECD - Organisation for Economic Co-operation and Development
BCF - Bioconcentration factor
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japanese Existing and New Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals
TWA - Time Weighted Average
IARC - International Agency for Research on Cancer
Predicted No Effect Concentration (PNEC)
LD50 - Lethal Dose 50%
EC50 - Effective Concentration 50%
POW - Partition coefficient Octanol:Water
vPvB - very Persistent, very Bioaccumulative
ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
MARPOL - International Convention for the Prevention of Pollution from Ships
ATE - Acute Toxicity Estimate
VOC (volatile organic compound)

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

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet