1. IDENTIFICATION

Product Description: METHYL OCTINE CARBONATE

CAS # 111-80-8

FEMA Number 2726

Other means of identification

Vigon Item # 500919

Recommended use Concentrated aromatic and flavor ingredient which may be used in flavor and fragrance compounds according to legal and IFRA or FEMA GRAS/FDA guidelines.

Recommended restrictions For Manufacturing Use Only

Company Vigon International, Inc.

Vigon International, Inc.

127 Airport Road

E. Stroudsburg, PA 18301

For information call: 570-476-6300

Web Site: www.vigon.com

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name Vigon International, Inc.

Address 127 Airport Road

E. Stroudsburg, PA 18301

United States

Telephone For information call: 570-476-6300

Website www.vigon.com

E-mail Not available.

Emergency phone number INFOTRAC (ACCT# 78928);

1-800-535-5053 WITHIN THE U.S.A.

1-352-323-3500 OUTSIDE THE U.S.A.

2. HAZARD(S) IDENTIFICATION

Physical hazards Not classified.

Health hazards

Acute toxicity, oral Category 5

Sensitization, skin Category 1

Environmental hazards Not classified.

Label elements

Signal word Warning

Hazard statement May be harmful if swallowed. May cause an allergic skin reaction.
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
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<tr>
<td>METHYL OCTINE CARBONATE</td>
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<td>111-80-8</td>
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<td>METHYL 2-NONYNOATE</td>
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<tr>
<td></td>
<td>methyloctyne carboxylate</td>
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</table>

4. FIRST-AID MEASURES

Inhalation: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. For breathing difficulties, oxygen may be necessary. Call a physician if symptoms develop or persist.

Skin contact: Take off immediately all contaminated clothing. Get medical attention if irritation develops and persists. Wash skin thoroughly with soap and water for several minutes.

Eye contact: Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists. Promptly wash eyes with plenty of water while lifting the eye lids.

Ingestion: Call a physician or poison control center immediately. If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.

Most important symptoms/effects, acute and delayed: May cause an allergic skin reaction. Dermatitis. Rash.

Indication of immediate medical attention and special treatment needed: Not available.

General information: Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water spray, fog, CO2, dry chemical, or alcohol resistant foam.

Unsuitable extinguishing media: Do not use a solid water stream as it may scatter and spread fire.
SAFETY DATA SHEET
500919 METHYL OCTINE CARBONATE

Specific hazards arising from the chemical
Fire may produce irritating, corrosive and/or toxic gases.

Special protective equipment and precautions for firefighters
Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection. Wear self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode when fighting fires.

Fire fighting equipment/instructions
In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Water runoff can cause environmental damage. Ventilate closed spaces before entering them. Keep run-off water out of sewers and water sources. Dike for water control.

Specific methods
Use water spray to cool unopened containers.

General fire hazards
Static charges generated by emptying package in or near flammable vapor may cause flash fire.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Keep unnecessary personnel away. Avoid contact with skin or inhalation of spillage, dust or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Eliminate all sources of ignition.

Methods and materials for containment and cleaning up
Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb with inert absorbent such as dry clay, sand or diatomaceous earth, commercial sorbents, or recover using pumps.

The product is immiscible with water and will spread on the water surface.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Prevent product from entering drains. Absorb in vermiculite, dry sand or earth and place into containers.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills in original containers for re-use. This material and its container must be disposed of as hazardous waste. Collect and dispose of spillage as indicated in section 13 of the SDS.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid release to the environment. Retain and dispose of contaminated wash water. Contact local authorities in case of spillage to drain/aquatic environment.

7. HANDLING AND STORAGE

Precautions for safe handling
Do not handle or store near an open flame, heat or other sources of ignition. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities
Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Occupational exposure limits**
This substance has no PEL, TLV, or other recommended exposure limit.

**Biological limit values**
No biological exposure limits noted for the ingredient(s).

**Appropriate engineering controls**
Use explosion-proof ventilation equipment to stay below exposure limits. Adequate ventilation should be provided so that exposure limits are not exceeded.

**Individual protection measures, such as personal protective equipment**

- **Eye/face protection**
  Wear safety glasses with side shields (or goggles). Face shield is recommended.

- **Skin protection**
  - **Hand protection**
    Chemical resistant gloves.
  - **Other**
    Use of an impervious apron is recommended.

- **Respiratory protection**
  Respiratory protection not required. If ventilation is insufficient, suitable respiratory protection must be provided.

- **Thermal hazards**
  Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations**
Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance**
  - Refer to Spec Sheet

- **Physical state**
  Liquid.

- **Form**
  Liquid.

- **Color**
  Refer to Spec Sheet

- **Odor**
  Characteristic.

- **Odor threshold**
  Not available.

- **pH**
  Not available.

- **Melting point/freezing point**
  Not available.

- **Flash point**
  > 200.0 °F (> 93.3 °C) Closed Cup

- **Evaporation rate**
  Not available.

- **Flammability (solid, gas)**
  Not applicable.

**Upper/lower flammability or explosive limits**

- **Flammability limit - lower (%)**
  Not available.

- **Flammability limit - upper (%)**
  Not available.

- **Explosive limit - lower (%)**
  Not available.

- **Explosive limit - upper (%)**
  Not available.

- **Vapor pressure**
  0.04 mm Hg at 25 °C

- **Vapor density**
  5.8

- **Relative density**
  Not available.
SOLUBILITY

Solubility (water): Insoluble

PARTITION COEFFICIENT

Partition coefficient (n-octanol/water): Not available.

AUTO-IGNITION TEMPERATURE

Auto-ignition temperature: Not available.

DECOMPOSITION TEMPERATURE

Decomposition temperature: Not available.

VISCOITY

Viscosity: Not available.

OTHER INFORMATION

Explosive properties: Not explosive.

Flammability class: Combustible IIIB estimated

Molecular formula: C10H16O2

Molecular weight: 168.24 g/mol

Oxidizing properties: Not oxidizing.

Specific gravity: 0.91 at 25 °C

10. STABILITY AND REACTIVITY

Reactivity: The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability: Material is stable under normal conditions.

Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use.

Conditions to avoid: Avoid temperatures exceeding the flash point. Contact with incompatible materials.

Incompatible materials: Strong oxidizing agents.

Hazardous decomposition products: No hazardous decomposition products if stored and handled as indicated.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

- Inhalation: No adverse effects due to inhalation are expected.
- Skin contact: Causes mild skin irritation. May cause an allergic skin reaction.
- Eye contact: Direct contact with eyes may cause temporary irritation.
- Ingestion: May be harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics: May cause an allergic skin reaction. Dermatitis. Rash.

Information on toxicological effects

Acute toxicity: May be harmful if swallowed.

Product | Species | Test Results
---|---|---
METHYL OCTINE CARBONATE (CAS 111-80-8) | | |
Acute | | |
Dermal | | |
LD50 | Rabbit | > 5000 mg/kg
SAFETY DATA SHEET
500919 METHYL OCTINE CARBONATE

Product | Species | Test Results |
---------|---------|-------------|
Oral     |         |             |
LD50     | Rat     | 2200 mg/kg  |

Skin corrosion/irritation
Species: rabbit
Mild skin irritation
Vapours may cause irritation to the skin.

Serious eye damage/eye irritation
Vapours may cause irritation to the eyes.

Respiratory or skin sensitization
Respiratory sensitization
Not a respiratory sensitizer.

Skin sensitization
May cause an allergic skin reaction.
LLNA mouse
Result: Strong sensitizer

Germ cell mutagenicity
No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Genotoxicity in vitro: Ames test negative
Genotoxicity in vivo: Micronucleus test Species: mouse negative

Carcinogenicity
IARC Monographs. Overall Evaluation of Carcinogenicity
Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)
Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens
Not listed.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not available.

Reproductive toxicity
This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure
Not classified.

Specific target organ toxicity - repeated exposure
Not classified.

Aspiration hazard
Not an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicity
The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and degradability
Biodegradability: Result: Readily biodegradable.
71 %
Method: OECD Test Guideline 301 F

Bioaccumulative potential
No data available.

Mobility in soil
No data available.
Other adverse effects
No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. DISPOSAL CONSIDERATIONS

Disposal instructions
Do not discharge into drains, water courses or onto the ground. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations
Dispose in accordance with all applicable regulations.

Hazardous waste code
Not established.

Waste from residues / unused products
Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging
Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

ADN
Not regulated as dangerous goods.

ADR
Not regulated as dangerous goods.

RID
Not regulated as dangerous goods.

DOT

BULK
Not regulated as dangerous goods.

DOT

NON-BULK
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

15. REGULATORY INFORMATION

US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CERCLA Hazardous Substance List (40 CFR 302.4)
Not listed.

SARA 304 Emergency release notification
Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not available.
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)
    Not regulated.
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
    Not regulated.
Superfund Amendments and Reauthorization Act of 1986 (SARA)
    SARA 302 Extremely hazardous substance
        Not listed.
        Classified hazard categories
            Acute toxicity (any route of exposure)
            Respiratory or skin sensitization
    SARA 313 (TRI reporting)
        Not regulated.

Other federal regulations
    Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
        Not regulated.
    Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
        Not regulated.
    Safe Drinking Water Act (SDWA)
        Not regulated.

US state regulations
    California Proposition 65
        California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance
            Not listed.

International Inventories

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<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
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<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
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<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
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<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
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<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
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<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
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<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
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<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
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*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).
16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

<table>
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<th>11-26-2015</th>
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Disclaimer
Vigon International, Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user’s responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available. The above information relates only to this product and not to its use in combination with any other material or any particular process and is designed only as guidance for the safe handling, use, processing, storage, transportation, and disposal and should not be considered as a guarantee or quality specification. This product has not been evaluated for safe use in e-cigarettes or any vaping application where the product(s) is/are intentionally vaporized and inhaled. Vigon International, Inc. has performed no testing on these products in e-cig/vaping applications. It is the sole responsibility of the individual(s) purchasing this product to assess its safety in the final application. The above information relates only to this product and not to its use in combination with any other material or any particular process and is designed only as guidance for the safe handling, use, processing, storage, transportation, disposal, and should not be considered as a guarantee or quality specification. The above information is based on data provided by and collected from recognized sources such as distributors, manufacturers, and technical groups and is considered to be accurate to the best of Vigon’s knowledge as of the date of this document. It is the responsibility of the user to review all safety information about this product and determine its safety and suitability in their own processes and operations. Appropriate warnings and safe handling procedures should be provided to all handlers and users, taking into account the intended use and the specific conditions and factors relating to such use in accordance with all applicable laws and regulations.

Revision information
This document has undergone significant changes and should be reviewed in its entirety.