1. IDENTIFICATION

Product Description: TRIETHYL CITRATE NATURAL

CAS # 77-93-0

FEMA Number 3083

Other means of identification
Vigon Item # 504113

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.
127 Airport Road
E. Stroudsburg, PA 18301

For information call: 570-476-6300

Web Site: www.vigon.com

2. HAZARD(S) IDENTIFICATION

Physical hazards Not classified.

Health hazards Acute toxicity, oral Category 5

Environmental hazards Not classified.

Label elements

Hazard symbol None.

Signal word Warning

Hazard statement H303 May be harmful if swallowed.

Precautionary statement

Prevention Observe good industrial hygiene practices.

Response P312 Call a POISON CENTER/doctor if you feel unwell.

Storage Store away from incompatible materials.

Disposal Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances
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
Direct contact with eyes may cause temporary irritation.

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.

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. Eliminate all sources of ignition. 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.

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. Do not allow material to contaminate ground water system. 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
No exposure limits noted for ingredient(s).

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.

Individual protection measures, such as personal protective equipment

Eye/face protection
Wear safety glasses with side shields (or goggles).

Skin protection
Chemical resistant gloves.

Hand protection

Other
Not available.
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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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Clear. 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
-67 °F (-55 °C)

Initial boiling point and boiling range
561.2 °F (294 °C)

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 mm Hg at 25 °C

Vapor density
9.6

Relative density
Not available.

Solubility(ies)
Solubility (water): Insoluble

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

Auto-ignition temperature
Not available.

Decomposition temperature
Not available.

Viscosity
Not available.

Other information
Density
1.14 g/cm3 at 20 °C

Dynamic viscosity
35.2 mPa.s
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Version # 02

Flammability class: Combustible IIIB estimated
Kinematic viscosity: 30.96 mm²/s estimated
Molecular formula: C₁₂-H₂₀-O₇
Molecular weight: 276.29 g/mol
Specific gravity: 1.14 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.
Eye contact: Causes mild eye irritation.
Ingestion: May be harmful if swallowed.
Symptoms related to the physical, chemical and toxicological characteristics
Direct contact with eyes may cause temporary irritation.

Information on toxicological effects
Acute toxicity: May be harmful if swallowed.

Product | Species | Test Results
--- | --- | ---
TRIETHYL CITRATE NATURAL (CAS 77-93-0) | | |
Acute | | |
Dermal | | |
LD50 | Rabbit | > 5000 mg/kg
Inhalation | | |
LC50 | Rat | 1300 ppm, 6 hours Remarks: Lungs, Thorax, or Respiration: Acute pulmonary edema. Lungs, Thorax, or Respiration: Pleural effusion Lungs, Thorax, or Respiration: Dyspnea.
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Version # 02

Product | Species | Test Results
--- | --- | ---
Oral LD50 | Rat | 3.2 g/kg Remarks: Behavioral: Altered sleep time (including change in righting reflex). Respiratory disorder Nutritional and Gross Metabolic: Changes in: Body temperature decrease.

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation | Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation | Direct contact with eyes may cause temporary irritation.
Respiratory or skin sensitzation | Respiratory sensitzation
Skin sensitization | Not a respiratory sensitizer.
Germ cell mutagenicity | This product is not expected to cause skin sensitization.
No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

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 | No data is available on the degradability of this product.
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.
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.

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

SARA 304 Emergency release notification
Not regulated.

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

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No
### SAFETY DATA SHEET

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**Version #** 02  
**Print Date:** 11-24-2015

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**SARA 302 Extremely hazardous substance**  
Not listed.

**SARA 311/312 Hazardous chemical**  
No

**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.
- **Food and Drug Administration (FDA)**  
  Total food additive  
  Direct food additive  
  GRAS food additive

**US state regulations**

- **US. Massachusetts RTK - Substance List**  
  Not regulated.
- **US. New Jersey Worker and Community Right-to-Know Act**  
  Not listed.
- **US. Pennsylvania Worker and Community Right-to-Know Law**  
  Not listed.
- **US. Rhode Island RTK**  
  Not regulated.
- **US. California Proposition 65**  
  Not listed.

**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

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**International Inventories**

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<thead>
<tr>
<th>Country(s) or region</th>
<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>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
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<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
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<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
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<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
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<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
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<td>Japan</td>
<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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<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
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16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Issue date 11-24-2015
Revision date 10-01-2015
Version # 02
HMIS® ratings
  Health: 1
  Flammability: 1
  Physical hazard: 0

Disclaimer
Vigon 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, 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
Product and Company Identification: Vigon Values
ACCIDENTAL RELEASE MEASURES: Methods and materials for containment and cleaning up
Physical & Chemical Properties: Multiple Properties
Toxicological Information: Toxicological Data
OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION: Disclaimer