

Product ZENOLIDE

Print Date 20.04.2015

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

Product name : ZENOLIDE
IFF Code : 00263015
Cust. Material : 00263015
MSDS Number : R00000004378

Use of the Substance/Mixture : Ingredient used in Flavour and/or Fragrance preparations

Company : IFF Benicarló, S.L.
Avda. Felipe Klein 2
12580 BENICARLÓ

Telephone : +34964470212
Emergency telephone number : +34 964 470 212

2. HAZARDS IDENTIFICATION**GHS-Classification**

Acute toxicity, Category 5, Oral
Skin corrosion/irritation, Category 3
Acute aquatic toxicity, Category 1
Chronic aquatic toxicity, Category 3

GHS-Labeling

Symbol(s) :



Signal word : Warning

Hazard statements : H303: May be harmful if swallowed.
H316: Causes mild skin irritation.
H400: Very toxic to aquatic life.
H412: Harmful to aquatic life with long lasting effects.

Precautionary statements : P273: Avoid release to the environment.
P312: Call a POISON CENTER or doctor/ physician if you feel unwell.
P332 + P313: If skin irritation occurs: Get medical advice/ attention.
P391: Collect spillage.

P501: Dispose of contents/ container to an approved waste disposal plant.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterization : esters of aliphatic acids

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Molecular formula : C₁₄H₂₄O₄
Molecular weight : 256.20 g/mol
CAS-No. : 54982-83-1

4. FIRST AID MEASURES

Inhalation : Remove from exposure site to fresh air and keep at rest. Obtain medical advice.

Skin contact : Remove contaminated clothes. Wash thoroughly with water (and soap). Contact physician if symptoms persist.

Eye contact : Flush immediately with water for at least 15 minutes. Contact physician if symptoms persist.

Ingestion : Rinse mouth with water and obtain medical advice.

5. FIREFIGHTING MEASURES

Suitable extinguishing media : Carbondioxide, dry chemical, foam.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions : Avoid inhalation and contact with skin and eyes. A self-contained breathing apparatus is recommended in case of a major spill.

Environmental precautions : Keep away from drains, surface- and groundwater and soil.

Methods for cleaning up : Clean up spillage promptly. Remove ignition sources. Provide adequate ventilation. Avoid excessive inhalation of vapours. Gross spillages should be contained by use of sand or inert powder and disposed of according to the local regulations.

7. HANDLING AND STORAGE

Handling

Advice on safe handling : Avoid excessive inhalation of concentrated vapors. Follow good manufacturing practices for housekeeping and personal hygiene. Wash any exposed skin immediately after any chemical contact, before breaks and meals, and at the end of each work period. Contaminated clothing and shoes should be thoroughly cleaned before re-use.

If appropriate, procedures used during the handling of this material should also be used when cleaning equipment or removing residual chemicals from tanks or other containers, especially when steam or hot water is used, as this may increase vapor concentrations in the workplace air. Where chemicals are openly handled, access should be restricted to properly trained employees.
Keep all heated processes at the lowest necessary temperature in

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order to minimize emissions of volatile chemicals into the air.

Advice on protection against fire and explosion : Keep away from ignition sources and naked flame.

Storage

Requirements for storage areas and containers : Store in a cool, dry, ventilated area away from heat sources. Keep containers upright and tightly closed when not in use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Verify if the substances declared in section 3 have relevant national exposure limits.

Personal protective equipment

Respiratory protection : Use local exhaust ventilation around open tanks and other open sources of potential exposures in order to avoid excessive inhalation, including places where this material is openly weighed or measured. In addition, use general dilution ventilation of the work area to eliminate or reduce possible worker exposures. No respiratory protection is required during normal operations in a workplace where engineering controls such as adequate ventilation, etc. are sufficient.

If engineering controls and safe work practices are not sufficient, an approved, properly fitted respirator with organic vapor cartridges or canisters and particulate filters should be used:

- a) while engineering controls and appropriate safe work practices and/or procedures are being implemented; or
- b) during short term maintenance procedures when engineering controls are not in normal operation or are not sufficient; or
- c) if normal operational workplace vapor concentration in the air is increased due to heat ;
- d) during emergencies; or
- e) if engineering controls and operational practices are not sufficient to reduce airborne concentrations below an established occupational exposure limit.

Hygiene measures : To the extent deemed appropriate, implement pre-placement and regularly scheduled ascertainment of symptoms and spirometry testing of lung function for workers who are regularly exposed to this material. To the extent deemed appropriate, use an experienced air sampling expert to identify and measure volatile chemicals that could be present in the workplace air to determine potential exposures and to ensure the continuing effectiveness of engineering controls and operational practices to minimize exposure.

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Protective measures : In December 2003, the National Institute for Occupational Safety and Health ("NIOSH") published an Alert on preventing lung disease in workers who use or make flavorings [NIOSH Publication Number 2004-110].
In August 2004, the United States Flavor and Extract Manufacturers Association (FEMA) issued a report entitled "Respiratory Safety in the Flavor Manufacturing Workplace".
Both of these reports provide recommendations for reducing employee exposure and for medical surveillance in the workplace. The recommendations in these reports are generally applicable to the use of any chemical in the workplace and you are strongly urged to review both of these reports.
The report published by FEMA also contains a list of "high priority" chemicals. If any of these chemicals are present in this product at a concentration $\geq 1.0\%$ due to an intentional addition by IFF, the chemical(s) will be identified in this safety data sheet.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state : liquid at 20 °C (1,013 hPa)
Colour : colorless
Odour : conforms to standard

Safety data

Flash point : 166 °C
at 1,013 hPa (1,013 hPa)
Ignition temperature : > 100 °C
Auto-ignition temperature : 395 °C
at 1,013 hPa
Method: Tested according to Annex V of Directive 67/548/EEC.
Boiling point : 337.30 °C
at 1,013 hPa
Note: Calculated
Vapour pressure : 0.00028 hPa
at 25 °C
Method: Tested according to Annex V of Directive 67/548/EEC.
Water solubility : 0.075 g/l
at 20 °C
Method: Tested according to Annex V of Directive 67/548/EEC.
Partition coefficient: n-
octanol/water : log Pow: 3.650

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10. STABILITY AND REACTIVITY

- Conditions to avoid : Remarks: Direct sources of heat.
- Hazardous decomposition products : Note: Carbon monoxide and unidentified organic compounds may be formed during combustion.
- Hazardous reactions : Presents no significant reactivity hazard, by itself or in contact with water. Avoid contact with strong acids, alkali or oxidizing agents.

11. TOXICOLOGICAL INFORMATION

- Acute oral toxicity : LD50 (Rat) = 4,500 mg/kg
- Acute dermal toxicity : LD50 (Rabbit) = >= 5,000 mg/kg
- Skin irritation : No skin irritation (OECD Test Guideline 404, Rabbit, 4 h)
- Eye irritation : No eye irritation (OECD Test Guideline 405, Rabbit, 24 h)
- Sensitisation : causes no sensitization (OECD Test Guideline 406, Guinea pig, 100%)

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

- Biodegradability : Readily biodegradable. (100 %, 28 d, CO2 Evolution Test)

Ecotoxicity effects

- Toxicity to fish : LC50(96 h, Oncorhynchus mykiss (rainbow trout)) = 0.88 mg/l (OECD Test Guideline 203)
- Toxicity to daphnia and other aquatic invertebrates : EC50(48 h, Daphnia magna (Water flea)) = > 14 mg/l (OECD Test Guideline 202)
- Toxicity to algae : EC50(72 h, Pseudokirchneriella subcapitata (microalgae)) = 17 mg/l (OECD Test Guideline 201)
- : NOEC(72 h, Pseudokirchneriella subcapitata (microalgae)) = 0.61 mg/l (OECD Test Guideline 201)

13. DISPOSAL CONSIDERATIONS

- Product : Disposal together with normal waste is not allowed. Special disposal required according to local regulations.
- Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

IATA

- UN number : 3082
- Description of the goods : Environmentally hazardous substance, liquid, n.o.s. (ETHYLENE DODECANEDIOATE)
- Labels : 9
- Packing group : III

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IMDG_GLOBAL

UN number : 3082
Description of the goods : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
N.O.S.
(ETHYLENE DODECANEDIOATE)
Labels : 9
Packing group : III
Marine pollutant : yes

15. REGULATORY INFORMATION

Labelling according to EC Directives 67/548/EEC

Symbol(s) : N Dangerous for the environment
R-phrases(s) : R50/53 Very toxic to aquatic organisms, may cause long-term
adverse effects in the aquatic environment.
S-phrases(s) : S61 Avoid release to the environment. Refer to special
instructions/ Safety data sheets.

HMIS Classification : Health hazard: 1
Flammability: 1
Physical and chemical hazards: 0

16. OTHER INFORMATION

Further information

The information in this safety data sheet is based on the properties of the material known to IFF at the time the data sheet was issued. The safety data sheet is intended to provide information for a health and safety assessment of the material and the circumstances under which it is packaged, stored or applied in the workplace. For such a safety assessment International Flavors & Fragrances holds no responsibility. This document is not intended for quality assurance purposes.

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