



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product VERDOX

Print Date 10/06/2017

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SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : VERDOX
IFF Code : 00222496
Cust. Material : 00222496
SDS Number : R00000495317
Product Use Description : Fragrance Ingredient

Company : PostalCode: 311606
Zhejiang Jiande City, Hangzhou
MamuRoad,Xiayatown18
INTERNATIONAL FLAVORS & FRAGRANCES(HANGZHOU)
CO., LTD.
Telephone : +8657164735488
Telefax : +8657164722092
Emergency telephone number : +86 532 8388 9090

SECTION 2 HAZARDS IDENTIFICATION

GHS-Classification

,

Not a hazardous substance or mixture.

GHS-Labeling

Carcinogenicity:

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components

Component	CAS-No.
Cyclohexanol, 2-(1,1-dimethylethyl)-, 1-acetate, (1R,2R)-rel-	20298-69-5, 88-41-5

SECTION 4. FIRST AID MEASURES

First aid procedures

- Inhalation : Remove from exposure site to fresh air and keep at rest. If victim is unconscious, remove foreign bodies from the mouth. If victim has stopped breathing, give artificial respiration. 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.

SECTION 5. FIREFIGHTING MEASURES

Flammable properties

- Flash point : Remarks: Not applicable

Fire fighting

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Suitable extinguishing media : Use water spray, dry chemical, carbon dioxide or appropriate foam.

Protective equipment and precautions for firefighters

Special protective equipment for firefighters : Wear NIOSH approved self-contained breathing apparatus and full protective clothing when fighting fires involving chemicals. Use water spray to cool containers exposed to fire.

SECTION 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 containment /
Methods for cleaning up : Clean up spillage promptly. Remove ignition sources. Provide adequate ventilation or exhaust. Avoid excessive inhalation of dust and vapours. Contain and recover free product. Dispose of according to the local regulations.

SECTION 7. HANDLING AND STORAGE

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

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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 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.

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.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Engineering measures

Engineering measures : Where feasible, isolate mixing rooms and other areas where this material is used or openly handled. Maintain these areas under negative air pressure relative to the rest of the plant.
Where feasible, use closed systems to transfer and process this material

Personal protective equipment

Eye protection : Use tight-fitting goggles, face shield or safety glasses with side shields if eye contact might occur.

Hand protection : Avoid skin contact. Use chemically resistant gloves.

Respiratory protection : Use local exhaust ventilation around open tanks and other open sources of potential exposures in order to avoid excessive inhalation,

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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.

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].

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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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state : solid
Appearance : SOLID
Colour : colorless

Odour : conforms to standard

Safety data

Flash point : Note: Not applicable

Flammability (solid, gas) : The product is not flammable.

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Auto-ignition temperature : 563 °F (295 °C)
at 1,013.00 hPa (1,013 hPa)

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Freezing point : 85.6 °F (29.8 °C)
at 1,013.00 hPa (1,013 hPa)
Method: OECD Test Guideline 102

Boiling point : 449.60 °F (232.00 °C)
at 1,013.00 hPa (1,013 hPa)

Vapour pressure : Note: Not applicable

Relative density (20 °C) : 0.9390 - 0.9450

Water solubility : 10 g/l
at 73 °F (23 °C)
Method: Purge & Trap

Partition coefficient: n-octanol/water : log Pow: 4.75
at 77 °F (25 °C)

Viscosity, dynamic : 5.2 mPa.s
at 68 °F (20 °C)

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid : Remarks: Direct sources of heat.

Chemical stability : Remarks: Presents no significant reactivity hazard, by itself or in contact with water. Avoid contact with strong acids, alkali or oxidizing agents.

Hazardous decomposition products : Note: Carbon monoxide and unidentified organic compounds may be formed during combustion.

SECTION 11. TOXICOLOGICAL INFORMATION

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Acute oral toxicity : Acute toxicity estimate
Dose: 4,600 mg/kg
Method: Calculation method

SECTION 12. ECOLOGICAL INFORMATION

Bioaccumulation : Species: Oncorhynchus mykiss (rainbow trout)
Exposure time: 33 d
Bioconcentration factor (BCF): 156
Method: OECD Test Guideline 305

SECTION 13. DISPOSAL CONSIDERATIONS

Contaminated packaging : Place material into sealed containers and dispose of in accordance with local, state and federal regulations.

SECTION 14. TRANSPORT INFORMATION

DOT Not dangerous goods

IATA UN number : 3077
Description of the goods : ENVIRONMENTALLY HAZARDOUS
SUBSTANCE, SOLID, N.O.S.
(cis-2-tert-butylcyclohexyl acetate)
Class : 9
Packing group : III
ICAO-Labels : 9

IMDG UN number : 3077
Description of the goods : ENVIRONMENTALLY HAZARDOUS

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SUBSTANCE, SOLID, N.O.S.
(cis-2-tert-butylcyclohexyl acetate)

Class : 9
Packing group : III
IMDG-Labels : 9
EmSNumber 1 : F-A
EmSNumber 2 : S-F
Marine pollutant : yes

SECTION 15. REGULATORY INFORMATION

SARA 311/312 Hazards : No SARA Hazards

Reportable Quantity :

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

SECTION 16. OTHER INFORMATION

Further information

The information in this MSDS was obtained from current and reliable sources. However the data is provided without any warrant, expressed or implied, regarding its correctness or accuracy. Since the use, handling, storage and disposal of this product are beyond IFF control, it is the responsibility of the user both to determine safe conditions for the use of this product and to assume liability of loss, damage, or expense arising out of the product's improper use. No warranty expressed or implied regarding the product described herein shall be created by or inferred from any statement or omission in this MSDS. Various Federal, State or Provincial agencies may have specific regulations concerning the transportation, handling, storage, use, or disposal of this product which may not be reflected in this MSDS. The user should review these regulations to ensure full compliance.

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