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SECTION 1. IDENTIFICATION

Product name : NEODENE 10/1112 IO/12 1:2:2

Product code : V1494, V1525

Manufacturer or supplier's details

Manufacturer/Supplier : Shell Chemicals Canada

PO Box 4280 STN C CALGARY AB T2T 5Z5

Canada

Telephone : 1-855-697-4355

Telefax : 1-866-213-7508

Emergency telephone number

CHEMTREC (24 hr) : 1-800-424-9300

Recommended use of the chemical and restrictions on use

Recommended use : Use as an intermediate in industrial chemicals manufacture.

Restrictions on use : This product must not be used in applications other than the

above without first seeking the advice of the supplier.

Other information : NEODENE is a trademark owned by Shell Trademark Man-

agement B.V. and Shell Brands Inc. and used by affiliates of

Shell plc.

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids : Category 4

Aspiration hazard : Category 1

Short-term (acute) aquatic

hazard

: Category 1

Long-term (chronic) aquatic

hazard

: Category 1

GHS label elements

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Hazard pictograms





Signal word : Danger

Hazard statements : PHYSICAL HAZARDS:

H227 Combustible liquid. HEALTH HAZARDS:

H304 May be fatal if swallowed and enters airways.

ENVIRONMENTAL HAZARDS: H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**

P210 Keep away from heat, hot surfaces, sparks, open flames

and other ignition sources. No smoking. P243 Take action to prevent static discharges. P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye protection/

face protection. **Response:**

P370 + P378 In case of fire: Use appropriate media to extin-

auish.

P301 + P310 IF SWALLOWED: Immediately call a POISON

CENTER/ doctor.

P331 Do NOT induce vomiting.

P391 Collect spillage.

Storage:

P403 + P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

Disposal:

P501 Dispose of contents and container to appropriate waste site or reclaimer in accordance with local and national regula-

tions.

Other hazards which do not result in classification

This material is a static accumulator.

Even with proper grounding and bonding, this material can still accumulate an electrostatic charge.

If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable airvapour mixtures can occur.

Vapours are heavier than air. Vapours may travel across the ground and reach remote ignition sources causing a flashback fire danger.

Will float and can be reignited on surface water.

Repeated exposure may cause skin dryness or cracking.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

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Substance / Mixture : Mixture

: NEODENE 10/1112 IO/12 1:2:2 Substance name

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
alkenes, C11-13, C12-rich	68526-58-9	>= 20 - <= 60
dodec-1-ene	112-41-4	>= 10 - <= 75
dec-1-ene	872-05-9	>= 5 - <= 20

SECTION 4. FIRST-AID MEASURES

General advice : Not expected to be a health hazard when used under normal

conditions.

If inhaled : No treatment necessary under normal conditions of use. If

symptoms persist, obtain medical advice.

In case of skin contact : Remove contaminated clothing. Immediately flush skin with

> large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical

facility for additional treatment.

In case of eye contact Flush eye with copious quantities of water.

Remove contact lenses, if present and easy to do. Continue

rinsing.

If persistent irritation occurs, obtain medical attention.

If swallowed Call emergency number for your location / facility.

> If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath,

chest congestion or continued coughing or wheezing.

Most important symptoms and effects, both acute and delayed

Not considered to be an inhalation hazard under normal conditions of use.

Possible respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, cough-

ing, and/or difficulty breathing.

Skin irritation signs and symptoms may include a burning sen-

sation, redness, or swelling.

No specific hazards under normal use conditions.

Eye irritation signs and symptoms may include a burning sen-

sation, redness, swelling, and/or blurred vision.

If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest

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congestion, shortness of breath, and/or fever.

If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath, chest congestion or continued coughing or wheezing.

The onset of respiratory symptoms may be delayed for sever-

al hours after exposure.

Defatting dermatitis signs and symptoms may include a burn-

ing sensation and/or a dried/cracked appearance.

Protection of first-aiders : When administering first aid, ensure that you are wearing the

appropriate personal protective equipment according to the

incident, injury and surroundings.

: Call a doctor or poison control center for guidance. Notes to physician

> Potential for chemical pneumonitis. Narcotic at high vapour concentrations.

Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Foam, water spray or fog. Dry chemical powder, carbon diox-

ide, sand or earth may be used for small fires only.

Unsuitable extinguishing

media

: Do not use water in a jet.

Specific hazards during fire-

fighting

: Clear fire area of all non-emergency personnel. Hazardous combustion products may include:

A complex mixture of airborne solid and liquid particulates and

gases (smoke). Carbon monoxide.

Unidentified organic and inorganic compounds.

Flammable vapours may be present even at temperatures

below the flash point.

The vapour is heavier than air, spreads along the ground and

distant ignition is possible.

Will float and can be reignited on surface water.

Specific extinguishing meth-

ods

: Standard procedure for chemical fires.

Further information : Keep adjacent containers cool by spraying with water.

Special protective equipment

for firefighters

Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if

large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to

relevant Standards (e.g. Europe: EN469).

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SECTION 6. ACCIDENTAL RELEASE MEASURES

tive equipment and emergency procedures

Personal precautions, protec- : Observe all relevant local and international regulations. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur.

Local authorities should be advised if significant spillages

cannot be contained.

Avoid contact with skin, eyes and clothing.

Isolate hazard area and deny entry to unnecessary or unpro-

tected personnel.

Do not breathe fumes, vapour. Do not operate electrical equipment.

Environmental precautions

: Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapour or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment.

Monitor area with combustible gas indicator.

Methods and materials for containment and cleaning up For small liquid spills (< 1 drum), transfer by mechanical means to a labeled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove

contaminated soil and dispose of safely.

For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely

Ventilate contaminated area thoroughly.

If contamination of site occurs remediation may require spe-

cialist advice.

Additional advice

: For guidance on selection of personal protective equipment

see Section 8 of this Safety Data Sheet.

For guidance on disposal of spilled material see Section 13 of

this Safety Data Sheet.

SECTION 7. HANDLING AND STORAGE

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General Precautions : Avoid breathing of or direct contact with material. Only use in

well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see

Section 8 of this Safety Data Sheet.

Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this

material.

Ensure that all local regulations regarding handling and stor-

age facilities are followed.

Advice on safe handling : Avoid inhaling vapour and/or mists.

Avoid contact with skin, eyes and clothing.

Extinguish any naked flames. Do not smoke. Remove ignition

sources. Avoid sparks.

Use local exhaust ventilation if there is risk of inhalation of

vapours, mists or aerosols.

Bulk storage tanks should be diked (bunded).

When using do not eat or drink.

The vapour is heavier than air, spreads along the ground and

distant ignition is possible.

Avoidance of contact : Strong oxidising agents.

Product Transfer : Even with proper grounding and bonding, this material can still

accumulate an electrostatic charge. If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur. Be aware of handling operations that may give rise to additional hazards that result from the accumulation of static charges. These include but are not limited to pumping (especially turbulent flow), mixing, filtering, splash filling, cleaning and filling of tanks and containers, sampling, switch loading, gauging, vacuum truck operations, and mechanical movements. These activities may lead to static discharge e.g. spark formation. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 1 m/s until fill pipe submerged to twice its diameter, then ≤ 7 m/s). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations.

Refer to guidance under Handling section.

Storage

Conditions for safe storage : Refer to section 15 for any additional specific legislation cov-

ering the packaging and storage of this product.

Other data : Storage Temperature:

Ambient.

Bulk storage tanks should be diked (bunded).

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Locate tanks away from heat and other sources of ignition. Cleaning, inspection and maintenance of storage tanks is a specialist operation, which requires the implementation of

strict procedures and precautions.

Must be stored in a diked (bunded) well- ventilated area, away from sunlight, ignition sources and other sources of heat. Keep away from aerosols, flammables, oxidizing agents, corrosives and from other flammable products which are not

harmful or toxic to man or to the environment.

Electrostatic charges will be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to reduce the risk.

The vapours in the head space of the storage vessel may lie in the flammable/explosive range and hence may be flamma-

ble.

Packaging material : Suitable material: For containers, or container linings use mild

steel, stainless steel., For container paints, use epoxy paint,

zinc silicate paint.

Unsuitable material: Avoid prolonged contact with natural,

butyl or nitrile rubbers.

Container Advice : Do not cut, drill, grind, weld or perform similar operations on or

near containers.

Specific use(s) : Not applicable

See additional references that provide safe handling practices for liquids that are determined to be static accumulators: American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practices

on Static Electricity).

IEC/TS 60079-32-1: Electrostatic hazards, guidance

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Components with workplace control parameters

Contains no components with occupational exposure limit values.

Biological occupational exposure limits

No biological limit allocated.

Monitoring Methods

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure con-

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trols. For some substances biological monitoring may also be appropriate.

Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory.

Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.

National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods http://www.cdc.gov/niosh/

Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods http://www.osha.gov/

Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances http://www.hse.gov.uk/

Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA) , Germany http://www.dguv.de/inhalt/index.jsp

L'Institut National de Recherche et de Securité, (INRS), France http://www.inrs.fr/accueil

Engineering measures

: The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:

Use sealed systems as far as possible.

Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits.

Local exhaust ventilation is recommended.

Firewater monitors and deluge systems are recommended.

Eye washes and showers for emergency use.

Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

General Information:

Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

Define procedures for safe handling and maintenance of controls.

Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.

Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.

Drain down system prior to equipment break-in or maintenance

Retain drain downs in sealed storage pending disposal or subsequent recycle.

Personal protective equipment

Respiratory protection : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health,

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select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus.

Where air-filtering respirators are suitable, select an appropriate combination of mask and filter.

If air-filtering respirators are suitable for conditions of use: Select a filter suitable for organic gases and vapours [Type A boiling point >65°C (149°F)].

Hand protection Remarks

: Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. Longer term protection: Nitrile rubber gloves. Incidental contact/Splash protection: PVC. neoprene or nitrile rubber gloves For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

Eye protection : If material is handled such that it could be splashed into eyes,

protective eyewear is recommended.

Skin and body protection : Skin protection is not required under normal conditions of

use.

For prolonged or repeated exposures use impervious clothing

over parts of the body subject to exposure.

If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to relevant Standard, and provide employee skin care programmes.

Wear antistatic and flame-retardant clothing, if a local risk

assessment deems it so.

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Protective measures : Personal protective equipment (PPE) should meet recom-

mended national standards. Check with PPE suppliers.

Hygiene measures : Wash hands before eating, drinking, smoking and using the

toilet.

Launder contaminated clothing before re-use.

Do not ingest. If swallowed, then seek immediate medical

assistance.

Environmental exposure controls

General advice : Local guidelines on emission limits for volatile substances

must be observed for the discharge of exhaust air containing

vapour.

Minimise release to the environment. An environmental assessment must be made to ensure compliance with local envi-

ronmental legislation.

Information on accidental release measures are to be found in

section 6.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Colour : Clear colourless

Odour : Mild hydrocarbon

Odour Threshold : Data not available

pH : Not applicable

Melting point/freezing point : < -30 °C / -22 °F

Boiling point/boiling range : 178 - 194 °C / 352 - 381 °F

Method: ASTM D86

Flash point : 65 - 74 °C / 149 - 165 °F

Evaporation rate : Data not available

Flammability

Flammability (solid, gas) : Combustible liquid.

Lower explosion limit and upper explosion limit / flammability limit

Upper explosion limit : Data not available

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Lower explosion limit : Data not available

: < 480 hPa (38 °C / 100 °F) Vapour pressure

estimated value(s)

Relative vapour density : Data not available

Relative density : Data not available

Density : 750 - 753 kg/m3 (25 °C / 77 °F)Method: ASTM D4052

Solubility(ies)

Water solubility : < 1 mg/l Based on data from similar materials (25 °C / 77 °F

Partition coefficient: n-

: log Pow: 5.6 - 6.1 octanol/water log Pow Based on data from similar materials

Auto-ignition temperature : 235 °C / 455 °F

Decomposition temperature : Data not available

Viscosity

Viscosity, dynamic : < 2 mPa.s (estimated value(s) /)

Method: ASTM D445

 $< 2 \text{ mm2/s} (20 \,^{\circ}\text{C} / 68 \,^{\circ}\text{F})$ Viscosity, kinematic

Method: ASTM D445

: no data available Explosive properties

Oxidizing properties : Data not available

Surface tension : Data not available

Conductivity : Low conductivity: < 100 pS/m, The conductivity of this material

> makes it a static accumulator., A liquid is typically considered nonconductive if its conductivity is below 100 pS/m and is considered semi-conductive if its conductivity is below 10,000 pS/m., Whether a liquid is nonconductive or semi-conductive, the precautions are the same., A number of factors, for example liquid temperature, presence of contaminants, and antistatic additives can greatly influence the conductivity of a liq-

uid

Molecular weight : 142 - 168 g/mol

SECTION 10. STABILITY AND REACTIVITY

Reactivity : The product does not pose any further reactivity hazards in

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addition to those listed in the following sub-paragraph.

Chemical stability : No hazardous reaction is expected when handled and stored

according to provisions

Stable under normal conditions of use.

Possibility of hazardous reac-

tions

: Reacts with strong oxidising agents.

Conditions to avoid : Avoid heat, sparks, open flames and other ignition sources.

In certain circumstances product can ignite due to static elec-

tricity.

Incompatible materials : Strong oxidising agents.

Hazardous decomposition

products

: Hazardous decomposition products are not expected to form

during normal storage.

Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases including carbon monoxide, carbon dioxide, sulphur oxides and unidentified organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degra-

dation.

SECTION 11. TOXICOLOGICAL INFORMATION

Basis for assessment : Information given is based on product testing, and/or similar

products, and/or components.

Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual com-

ponent(s).

Information on likely routes of exposure

Skin and eye contact are the primary routes of exposure although exposure may occur through inhalation or following accidental ingestion.

Acute toxicity

Product:

Acute oral toxicity : LD50 (Rat): > 5000 mg/kg

Remarks: Low toxicity

Based on available data, the classification criteria are not met.

Acute inhalation toxicity : Remarks: Low toxicity if inhaled.

Based on available data, the classification criteria are not met.

Acute dermal toxicity : LD50 (Rabbit): > 2000 mg/kg

Remarks: Low toxicity

Based on available data, the classification criteria are not met.

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Components:

dodec-1-ene:

Acute oral toxicity : LD 50 (Rat, male and female): > 5,000 mg/kg

Method: Test(s) equivalent or similar to OECD Test Guideline

420

Remarks: Based on available data, the classification criteria

are not met. Low toxicity

LD50 >5000 mg/kg

Acute inhalation toxicity : LC 50 (Rat, male): > 20 mg/l

Exposure time: 4 h
Test atmosphere: vapour

Method: Test(s) equivalent or similar to OECD Test Guideline

403

Remarks: Based on available data, the classification criteria

are not met.

Low toxicity if inhaled.

Acute dermal toxicity : LD 50 (Rabbit, male and female): > 2,000 mg/kg

Method: OECD Test Guideline 402

Remarks: May be harmful in contact with skin.

LD50 >2000 - <=5000 mg/kg

Based on available data, the classification criteria are not met.

dec-1-ene:

Acute oral toxicity : LD 50 (Rat, male and female): > 5,000 mg/kg

Method: Test(s) equivalent or similar to OECD Test Guideline

420

Remarks: Based on available data, the classification criteria

are not met.

Acute inhalation toxicity : LC 50 (Rat, male): > 20 mg/l

Exposure time: 4 h
Test atmosphere: vapour

Method: Test(s) equivalent or similar to OECD Test Guideline

403

Remarks: Based on available data, the classification criteria

are not met.

Acute dermal toxicity : LD 50 (Rabbit, male and female): > 2,000 mg/kg

Method: Test(s) equivalent or similar to OECD Test Guideline

402

Remarks: Based on available data, the classification criteria

are not met.

May be harmful in contact with skin. LD50 > 2000 - <= 5000 mg/kg

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Skin corrosion/irritation

Product:

Remarks: Causes mild skin irritation.

Repeated exposure may cause skin dryness or cracking.

Components:

dodec-1-ene: Species: Rabbit

Method: Test(s) equivalent or similar to OECD Test Guideline 404

Remarks: Causes mild skin irritation.

dec-1-ene: Species: Rabbit

Method: Test(s) equivalent or similar to OECD Test Guideline 404 Remarks: Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation

Product:

Remarks: Slightly irritating to the eye.

Based on available data, the classification criteria are not met.

Components:

dodec-1-ene: Species: Rabbit

Method: Test(s) equivalent or similar to OECD Test Guideline 405

Remarks: Based on available data, the classification criteria are not met.

Not irritating to eye.

dec-1-ene: Species: Rabbit

Method: OECD Test Guideline 405

Remarks: Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation

Product:

Remarks: Not a sensitiser.

Based on available data, the classification criteria are not met.

Components:

dodec-1-ene:

Species: Guinea pig

Method: Test(s) equivalent or similar to OECD Test Guideline 406 Remarks: Based on available data, the classification criteria are not met.

Not a sensitiser.

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dec-1-ene:

Species: Guinea pig Method: Literature data

Remarks: Based on available data, the classification criteria are not met.

Not a sensitiser.

Germ cell mutagenicity

Product:

Genotoxicity in vivo : Remarks: Non mutagenic

Components:

dodec-1-ene:

Genotoxicity in vitro : Method: OECD Test Guideline 471

Remarks: Based on available data, the classification criteria

are not met. Non mutagenic

: Method: Test(s) equivalent or similar to OECD Test Guideline

473

Remarks: Based on available data, the classification criteria

are not met. Non mutagenic

Genotoxicity in vivo : Species: Mouse

Method: OECD Test Guideline 471

Remarks: Based on available data, the classification criteria

are not met. Non mutagenic

Germ cell mutagenicity -

Assessment

This product does not meet the criteria for classification in

categories 1A/1B.

dec-1-ene:

Genotoxicity in vitro : Method: OECD Test Guideline 471

Remarks: Based on available data, the classification criteria

are not met. Non mutagenic

Genotoxicity in vivo : Species: Mouse

Method: Test(s) equivalent or similar to OECD Test Guideline

474

Remarks: Based on available data, the classification criteria

are not met. Non mutagenic

Germ cell mutagenicity -

Assessment

This product does not meet the criteria for classification in

categories 1A/1B.

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Carcinogenicity

Product:

Remarks: Not a carcinogen.

Based on available data, the classification criteria are not met.

Components:

dodec-1-ene:

Carcinogenicity - Assess-

ment

: This product does not meet the criteria for classification in

categories 1A/1B.

dec-1-ene:

Carcinogenicity - Assess-

ment

: This product does not meet the criteria for classification in

categories 1A/1B.

IARC 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.

OSHA No component of this product present at levels greater than or

equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP 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.

Reproductive toxicity

Product:

Effects on fertility

Remarks: Not a developmental toxicant.

Based on available data, the classification criteria are not met.

Does not impair fertility.

Components:

dodec-1-ene:

Effects on fertility

Species: Rat

Sex: male and female Application Route: Oral

Method: OECD Test Guideline 422

Remarks: Based on available data, the classification criteria

are not met.

Does not impair fertility.

Effects on foetal develop-

ment

Species: Rat, female Application Route: Oral

Method: OECD Test Guideline 414

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Remarks: Based on available data, the classification criteria

are not met.

Not a developmental toxicant.

Reproductive toxicity - As-

sessment

: This product does not meet the criteria for classification in

categories 1A/1B.

dec-1-ene:

Effects on fertility

Species: Rat

Sex: male and female Application Route: Oral

Method: OECD Test Guideline 422

Remarks: Based on available data, the classification criteria

are not met.

Not expected to impair fertility.

Effects on foetal develop-

ment

Species: Rat, female Application Route: Oral

Method: OECD Test Guideline 414

Remarks: Based on available data, the classification criteria

are not met.

Not a developmental toxicant.

Reproductive toxicity - As-

sessment

: This product does not meet the criteria for classification in

categories 1A/1B.

STOT - single exposure

Product:

Remarks: Based on available data, the classification criteria are not met.

Components:

dodec-1-ene:

Remarks: Based on available data, the classification criteria are not met.

dec-1-ene:

Remarks: Based on available data, the classification criteria are not met.

STOT - repeated exposure

Product:

Remarks: Based on available data, the classification criteria are not met.

Components:

dodec-1-ene:

Remarks: Based on available data, the classification criteria are not met.

Repeated exposure may cause skin dryness or cracking.

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dec-1-ene:

Remarks: Based on available data, the classification criteria are not met.

Repeated exposure may cause skin dryness or cracking.

Repeated dose toxicity

Components:

dodec-1-ene:

Species: Rat, male and female

Application Route: Oral

Method: OECD Test Guideline 408

Target Organs: No specific target organs noted

Species: Rat, male and female Application Route: Inhalation Test atmosphere: vapour

Method: Test(s) equivalent or similar to OECD Test Guideline 413

Target Organs: No specific target organs noted

dec-1-ene:

Species: Rat, male and female

Application Route: Oral

Method: OECD Test Guideline 408

Target Organs: No specific target organs noted

Species: Rat, male and female Application Route: Inhalation Test atmosphere: vapour

Method: Test(s) equivalent or similar to OECD Test Guideline 413

Target Organs: No specific target organs noted

Aspiration toxicity

Product:

Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.

Components:

dodec-1-ene:

Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.

dec-1-ene:

Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.

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Further information

Product:

Remarks: Classifications by other authorities under varying regulatory frameworks may exist.

Components:

dodec-1-ene:

Remarks: Classifications by other authorities under varying regulatory frameworks may exist.

dec-1-ene:

Remarks: Classifications by other authorities under varying regulatory frameworks may exist.

SECTION 12. ECOLOGICAL INFORMATION

Incomplete ecotoxicological data are available for this product. Basis for assessment

> The information given below is based partly on a knowledge of the components and the ecotoxicology of similar products. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual com-

ponent(s).

Ecotoxicity

Product:

Toxicity to fish (Acute toxici-

ty)

Remarks: Based on available data, the classification criteria

are not met.

Practically non toxic: LL/EL/IL50 > 100 mg/l

Toxicity to crustacean (Acute

toxicity)

Remarks: Very toxic. LL/EL/IL50 <= 1 mg/I

Toxicity to algae/aquatic

plants (Acute toxicity)

Remarks: Very toxic. LL/EL/IL50 <= 1 mg/I

Toxicity to fish (Chronic tox-

icity)

: Remarks: Data not available

Toxicity to crustacean

(Chronic toxicity)

: Remarks: Data not available

Toxicity to microorganisms

(Acute toxicity)

: Remarks: Based on available data, the classification criteria

are not met.

Practically non toxic: LL/EL/IL50 > 100 mg/l

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Components:

dodec-1-ene:

Toxicity to fish (Acute toxici-

ty)

: LC50 (Oncorhynchus mykiss (rainbow trout)): > 0.0034 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Remarks: No toxicity at the limit of solubility

Toxicity to crustacean (Acute

toxicity)

EC50 (Daphnia magna (Water flea)): > 0.0028 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Remarks: No toxicity at the limit of solubility

Toxicity to algae/aquatic plants (Acute toxicity)

: EC50 (Pseudokirchneriella subcapitata (algae)): > 0.00093

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Remarks: Not toxic at limit of water solubility:

Toxicity to fish (Chronic tox-

icity)

: Remarks: Data not available

Toxicity to crustacean(Chronic toxicity)

Toxicity to bacteria

: Remarks: Data not available

: NOEC (Secondary Effluent): 2 mg/l

Exposure time: 336 h

Method: OECD Test Guideline 301D Remarks: No toxicity at the limit of solubility

dec-1-ene:

Toxicity to fish (Acute toxici-

ty)

LC50 (Oncorhynchus mykiss (rainbow trout)): > 0.93 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Remarks: Very toxic. LL/EL/IL50 <= 1 mg/l

Toxicity to crustacean (Acute

toxicity)

EC50 (Daphnia magna (Water flea)): 0.18 - 0.32 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Remarks: Very toxic. LL/EL/IL50 <= 1 mg/l

Toxicity to algae/aquatic plants (Acute toxicity)

: EC50 (Pseudokirchneriella subcapitata (algae)): > 5.5 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 201

Remarks: Very toxic. LL/EL/IL50 <= 1 mg/l

M-Factor (Acute aquatic tox-

icity)

: 1

Toxicity to fish (Chronic tox- : Remarks: Data not available

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icity)

Toxicity to crusta- : NOEC (Daphnia magna (Water flea)): 19.4 mg/l

cean(Chronic toxicity) Exposure time: 21 d

Method: OECD Test Guideline 211

Remarks: NOEC/NOEL > 0.01 - <=0.1 mg/l

Toxicity to bacteria : EC50 (Bacteria): Exposure time: 16 h

Method: Other guideline method.

Remarks: Expected to be practically non toxic:

LL/EL/IL50 > 100 mg/l

No toxicity at the limit of solubility

Persistence and degradability

Product:

Biodegradability : Remarks: Readily biodegradable.

Components:

dodec-1-ene:

Biodegradability : Biodegradation: 72.4 - 74.5 %

Exposure time: 28 d

Method: OECD Test Guideline 301D Remarks: Readily biodegradable.

dec-1-ene:

Biodegradability : Biodegradation: 80.8 - 80.9 %

Exposure time: 28 d

Method: OECD Test Guideline 301F Remarks: Readily biodegradable.

Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Has the potential to bioaccumulate.

: log Pow: 5.6 - 6.1

Partition coefficient: n-

octanol/water Remarks: log Pow

Based on data from similar materials

Components:

dodec-1-ene:

Bioaccumulation : Remarks: Has the potential to bioaccumulate.

dec-1-ene:

Bioaccumulation : Remarks: Has the potential to bioaccumulate.

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Mobility in soil

Product:

Mobility : Remarks: Floats on water.

Adsorbs to soil and has low mobility

Components:

dodec-1-ene:

Mobility : Remarks: If it enters soil, it will adsorb to soil particles and will

not be mobile. Floats on water.

dec-1-ene:

Mobility : Remarks: If it enters soil, it will adsorb to soil particles and will

not be mobile. Floats on water.

Other adverse effects

Components:

dodec-1-ene:

Results of PBT and vPvB

assessment

: The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not consid-

ered to be PBT or vPvB.

Additional ecological infor-

mation

: Data not available

dec-1-ene:

Results of PBT and vPvB

assessment

: The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not consid-

ered to be PBT or vPvB.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Recover or recycle if possible.

It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal meth-

ods in compliance with applicable regulations.

Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment. Do not dispose into the environment, in drains or in water

courses.

Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater

contamination.

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Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

Waste, spills or used product is dangerous waste.

Disposal should be in accordance with applicable regional,

national, and local laws and regulations.

Local regulations may be more stringent than regional or na-

tional requirements and must be complied with.

MARPOL - see International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) which provides tech-

nical aspects at controlling pollutions from ships.

Contaminated packaging : Drain container thoroughly.

After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not puncture,

cut or weld uncleaned drums.

Send to drum recoverer or metal reclaimer.

Comply with any local recovery or waste disposal regulations.

SECTION 14. TRANSPORT INFORMATION

National Regulations

TDG

Not regulated as a dangerous good

International Regulations

IATA-DGR

UN/ID No. : UN 3082

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S.

(C10-C13 OLEFINS)

Class : 9
Packing group : III
Labels : 9

IMDG-Code

UN number : UN 3082

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S.

(C10-C13 OLEFINS)

Class : 9
Packing group : III
Labels : 9

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Marine pollutant : yes

Maritime transport in bulk according to IMO instruments

Pollution category : X Ship type : 2

Product name : Olefin mixtures (C5-C15)

Special precautions for user

Remarks : Special Precautions: Refer to Section 7, Handling & Storage,

for special precautions which a user needs to be aware of or

needs to comply with in connection with transport.

Additional Information: This product may be transported under nitrogen blanketing.

Nitrogen is an odourless and invisible gas. Exposure to nitrogen enriched atmospheres displaces available oxygen which may cause asphyxiation or death. Personnel must observe strict safety precautions when involved with a confined space

entry.

Transport in bulk according to Annex II of Marpol and the IBC

Code

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

The components of this product are reported in the following inventories:

IECSC : Listed

ENCS : Listed

TSCA : Listed

DSL : Listed

AIIC : Listed

PICCS : Listed

KECI : Listed

NZIoC : Listed

TCSI : Listed

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SECTION 16. OTHER INFORMATION

Full text of other abbreviations

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR -Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China: IMDG - International Maritime Dangerous Goods: IMO - International Maritime Organization: ISHL - Industrial Safety and Health Law (Japan): ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals: OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

A vertical bar (|) in the left margin indicates an amendment from the previous version.

Sources of key data used to compile the Safety Data Sheet

: The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU

IUCLID date base, EC 1272 regulation, etc).

Revision Date : 2023-11-01

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.

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