

# SAFETY DATA SHEET

ExxonMobil

5-VINYL-2-NORBORNENE

## Section 1. Identification

**Product name** : 5-VINYL-2-NORBORNENE

**Product description** : Aromatic Hydrocarbon

### Relevant identified uses of the substance or mixture and uses advised against

**Identified uses** : Chemical Intermediate

**Uses advised against** : This product is not recommended for any industrial, professional or consumer use other than the identified uses above.

**Supplier** : ExxonMobil Product Solutions Company (a division of Exxon Mobil Corporation)  
SDS – LOC. 106  
22777 Springwoods Village Parkway  
Spring, TX 77389-1425 USA

**24-Hour emergency telephone number** : 1-800-424-9300 / +1 703-741-5970 / +1-703-527-3887 (CHEMTREC)

**Supplier General Contact** : (832) 624-8500

**SDS Internet Address** : [www.sds.exxonmobil.com](http://www.sds.exxonmobil.com)

## Section 2. Hazards identification

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification of the substance or mixture** : FLAMMABLE LIQUIDS - Category 3  
ACUTE TOXICITY (inhalation) - Category 4  
SKIN SENSITIZATION - Category 1  
TOXIC TO REPRODUCTION - Category 2  
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2  
ASPIRATION HAZARD - Category 1

### GHS label elements

**Hazard pictograms** :



**Signal word** : Danger

**Hazard statements** : H226 - Flammable liquid and vapor.  
H304 - May be fatal if swallowed and enters airways.  
H317 - May cause an allergic skin reaction.  
H332 - Harmful if inhaled.  
H361 - Suspected of damaging fertility or the unborn child.  
H373 - May cause damage to organs through prolonged or repeated exposure. (liver, testes, thyroid)

### Precautionary statements

**Prevention** : P201 - Obtain special instructions before use.  
P202 - Do not handle until all safety precautions have been read and understood.  
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233 - Keep container tightly closed.  
P240 - Ground and bond container and receiving equipment.  
P241 - Use explosion-proof electrical, ventilating or lighting equipment.  
P242 - Use non-sparking tools.  
P243 - Take action to prevent static discharges.

## Section 2. Hazards identification

|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                         | P260 - Do not breathe vapor.<br>P271 - Use only outdoors or in a well-ventilated area.<br>P272 - Contaminated work clothing must not be allowed out of the workplace.<br>P280 - Wear protective gloves, protective clothing and eye or face protection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Response</b>                         | : P301 + P331, P310 - IF SWALLOWED: Do NOT induce vomiting. Immediately call a POISON CENTER or doctor.<br>P302 + P352 - IF ON SKIN: Wash with plenty of water.<br>P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.<br>P304 + P312, P340 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell. Remove person to fresh air and keep comfortable for breathing.<br>P308 + P313 - IF exposed or concerned: Get medical advice or attention.<br>P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention.<br>P363 - Wash contaminated clothing before reuse.<br>P370 + P378 - In case of fire: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish. |
| <b>Storage</b>                          | : P403 + P235 - Store in a well-ventilated place. Keep cool.<br>P405 - Store locked up.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Disposal</b>                         | : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Contains</b>                         | : vinylnorbornene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Hazards not otherwise classified</b> | : None known.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Note</b>                             | : This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

## Section 3. Composition/information on ingredients

|                          |                   |
|--------------------------|-------------------|
| <b>Substance/mixture</b> | : Substance       |
| <b>Chemical name</b>     | : vinylnorbornene |

| <b>Ingredient name</b> | <b>% by weight</b> | <b>Identifiers</b> |
|------------------------|--------------------|--------------------|
| vinylnorbornene        | 95                 | CAS: 3048-64-4     |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.**

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### Description of necessary first aid measures

|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye contact</b> | : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs. Get medical attention following exposure or if feeling unwell.                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Inhalation</b>  | : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |

## Section 4. First aid measures

- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Continue to rinse for at least 10 minutes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Get medical attention. Wash with plenty of soap and water. In the event of any complaints or symptoms, avoid further exposure.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : Harmful if inhaled.
- Skin contact** : May cause an allergic skin reaction.
- Ingestion** : May be fatal if swallowed and enters airways.

#### Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness
- Ingestion** : Adverse symptoms may include the following:  
nausea or vomiting

### Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

## Section 5. Fire-fighting measures

|                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Specific hazards arising from the chemical</b>     | : Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain. |
| <b>Hazardous combustion products</b>                  | : Incomplete combustion products, Oxides of carbon, Smoke, Fume                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Special protective actions for fire-fighters</b>   | : Use standard firefighting procedures and consider the hazards of other involved materials. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Assure an extended cooling down period to prevent re-ignition. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. No action shall be taken involving any personal risk or without suitable training.                             |
| <b>Special protective equipment for fire-fighters</b> | : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.                                                                                                                                                                                                                                                                                                                                                                                                                                            |

## Section 6. Accidental release measures

### NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

### Personal precautions, protective equipment and emergency procedures

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>For non-emergency personnel</b> | : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Put on appropriate personal protective equipment. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. |
| <b>For emergency responders</b>    | : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".                                                                                                                                                                                                                                                                      |

|                                  |                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Environmental precautions</b> | : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage. |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Methods and materials for containment and cleaning up

|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Small spill</b> | : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Large spill</b> | : Stop leak if without risk. Eliminate all ignition sources. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. If the Flash Point does not exceed the Ambient Air Temperature by at least 10C, use booms as a barrier to protect shorelines and allow material to evaporate. If the Flash Point exceeds the Ambient Temperature by 10 degrees C or more, use containment booms and remove |

## Section 6. Accidental release measures

from the surface by skimming or with suitable absorbents when conditions permit. Seek the advice of a specialist before using dispersants. Warn other shipping. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

## Section 7. Handling and storage

### Precautions for safe handling

#### Protective measures

: Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

#### Advice on general occupational hygiene

: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

#### Static Accumulator

: This material is a static accumulator. A liquid is typically considered a nonconductive, static accumulator if its conductivity is below 100 pS/m (100x10E-12 Siemens per meter) and is considered a semiconductive, static accumulator if its conductivity is below 10,000 pS/m. Whether a liquid is nonconductive or semiconductive, the precautions are the same. A number of factors, for example liquid temperature, presence of contaminants, anti-static additives and filtration can greatly influence the conductivity of a liquid.

#### Loading/Unloading Temperature

: Ambient

#### Transport Temperature

: Ambient

#### Transport Pressure

: Ambient

#### Conditions for safe storage, including any incompatibilities

: Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

#### Storage Temperature

: Ambient

#### Storage Pressure

: Ambient

#### Suitable Containers/Packing

: Bottles, Drums

#### Suitable Materials and Coatings

: zinc, nickel, glass, Ceramic, Teflon, Carbon Steel, Stainless Steel

#### Unsuitable Materials and Coatings

: copper, polyethylene

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

| Ingredient name  | Exposure limits                                                                                                                                                                 |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| vinylInorbornene | <b>ExxonMobil (COMPANY)</b><br>CEIL: 5 ppm. Form: Vapor..<br>CEIL: 25 mg/m <sup>3</sup> . Form: Vapor..<br>TWA: 1 ppm. Form: Vapor..<br>TWA: 5 mg/m <sup>3</sup> . Form: Vapor. |
| vinylInorbornene | None.                                                                                                                                                                           |

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

### Appropriate engineering controls

- : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

### Environmental exposure controls

- : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

#### Hygiene measures

- : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

#### Eye/face protection

- : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

#### Skin protection

##### Hand protection

- : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

##### Body protection

- : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

##### Other skin protection

- : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

#### Respiratory protection

- : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.



## Section 9. Physical and chemical properties and safety characteristics

**Note:** Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### Appearance

|                                                          |                                     |
|----------------------------------------------------------|-------------------------------------|
| Physical state                                           | : Liquid. [Clear]                   |
| Color                                                    | : Colorless                         |
| Odor                                                     | : Strong                            |
| Odor threshold                                           | : Not available.                    |
| pH                                                       | : Not applicable.                   |
| Melting point/freezing point                             | : -80°C (-112°F)                    |
| Boiling point or initial boiling point and boiling range | : 141.11°C (286°F)                  |
| Flash point                                              | : Closed cup: 27°C (80.6°F)         |
| Evaporation rate                                         | : Not available.                    |
| Flammability                                             | : Flammable liquids - Category 3    |
| Lower and upper explosion limit/flammability limit       | : Not available.                    |
| Vapor pressure                                           | : 6 mm Hg [20 °C]                   |
| Relative vapor density                                   | : 4.1 [Air = 1]                     |
| Relative density                                         | : 0.89                              |
| Solubility in water                                      | : Negligible                        |
| Partition coefficient: n-octanol/water                   | : Not applicable.                   |
| Auto-ignition temperature                                | : Not available.                    |
| Decomposition temperature                                | : Not available.                    |
| Viscosity                                                | : 1.2 cSt [20 °C]<br>0.9 cSt [45°C] |
| Molecular weight                                         | : 120.2                             |

### Particle characteristics

|                                  |                     |
|----------------------------------|---------------------|
| Median particle size             | : Not applicable.   |
| Hygroscopic                      | : No                |
| Coefficient of Thermal Expansion | : 0.00033 per Deg C |

## Section 10. Stability and reactivity

|                                    |                                                                                                                                                                                                                                      |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reactivity                         | : No specific test data related to reactivity available for this product or its ingredients.                                                                                                                                         |
| Chemical stability                 | : The product is stable.                                                                                                                                                                                                             |
| Possibility of hazardous reactions | : Under normal conditions of storage and use, hazardous reactions will not occur.                                                                                                                                                    |
| Conditions to avoid                | : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas. |
| Incompatible materials             | : Reactive or incompatible with the following materials:,oxidizing materials,Halogens, Bases, Sulfur dioxide, Monomers, acids                                                                                                        |

## Section 10. Stability and reactivity

**Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

| Product/ingredient name | Test                  | Species | Result            | Duration |
|-------------------------|-----------------------|---------|-------------------|----------|
| vinylbornene            | LC50 Inhalation Vapor | Rat     | 13.5 to 15.1 mg/l | 4 hours  |
|                         | LD50 Dermal           | Rabbit  | >14200 mg/kg      | -        |
|                         | LD50 Oral             | Rat     | 5240 mg/kg        | -        |

#### Conclusion/Summary

- Inhalation** : Slightly toxic. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 403
- Dermal** : Minimally Toxic. Data available. Based on test data for structurally similar materials. Test (s) equivalent or similar to OECD Guideline 402
- Oral** : Minimally Toxic. Data available. Based on test data for structurally similar materials. Test (s) equivalent or similar to OECD Guideline 401

#### Irritation/Corrosion

#### Conclusion/Summary

- Skin** : May dry the skin leading to discomfort and dermatitis. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 404
- Eyes** : May cause mild, short-lasting discomfort to eyes. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 405
- Respiratory** : Negligible hazard at ambient/normal handling temperatures. No end point data for material. Elevated temperatures or mechanical action may form vapors, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs.

#### Respiratory or skin sensitization

#### Conclusion/Summary

- Skin** : May cause allergic skin reaction. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 429
- Respiratory** : Not expected to be a respiratory sensitizer. No end point data for material.

#### Mutagenicity

#### Conclusion/Summary

- : Not expected to be a germ cell mutagen. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 471 473 476 478

#### Carcinogenicity

#### Conclusion/Summary

- : Not expected to cause cancer. No end point data for material.

#### Reproductive toxicity

#### Conclusion/Summary

- : May damage fertility. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 414 421

#### Specific target organ toxicity (single exposure)

#### Conclusion/Summary

- : Not expected to cause organ damage from a single exposure. No end point data for material.

#### Specific target organ toxicity (repeated exposure)

| Product/ingredient name | Category   | Target organs          |
|-------------------------|------------|------------------------|
| vinylbornene            | Category 2 | liver, testes, thyroid |

#### Conclusion/Summary

- : May cause damage to organs through prolonged or repeated exposure. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 407 413

#### Aspiration hazard

#### Conclusion/Summary

- : May be fatal if swallowed and enters airways. Based on physico-chemical properties of the material. Data available.



## Section 11. Toxicological information

### Other information

**Product** : Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema.

## Section 12. Ecological information

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

### Toxicity

### Conclusion/Summary

**Acute toxicity** : Toxic to aquatic life.

**Chronic toxicity** : Toxic to aquatic life with long lasting effects.

### Persistence and degradability

**Biodegradability** : Material -- Expected to biodegrade slowly.

**Atmospheric Oxidation** : Material -- Expected to degrade rapidly in air

### Bioaccumulative potential

Not determined.

### Mobility in soil

**Mobility** : Material -- Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids.

### Other ecological information

**Other adverse effects** : No known significant effects or critical hazards.

## Section 13. Disposal considerations

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

## Section 14. Transport information

|                            | DOT Classification                           | TDG Classification                         | IMDG                                       | IATA                                       |
|----------------------------|----------------------------------------------|--------------------------------------------|--------------------------------------------|--------------------------------------------|
| UN number                  | UN1993                                       | UN1993                                     | UN1993                                     | UN1993                                     |
| UN proper shipping name    | Flammable liquids, n. o.s. (vinylnorbornene) | FLAMMABLE LIQUID, N.O.S. (vinylnorbornene) | FLAMMABLE LIQUID, N.O.S. (vinylnorbornene) | Flammable liquid, n.o.s. (vinylnorbornene) |
| Transport hazard class(es) | 3                                            | 3                                          | 3                                          | 3                                          |

## Section 14. Transport information

|                       |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                                                                                                        |                                                                                     |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Label(s) / Marks      |   |   |   |  |
| Packing group         | III                                                                                                                                                                 | III                                                                                                                                                                 | III                                                                                                                                                                    | III                                                                                 |
| Environmental hazards | Yes.                                                                                                                                                                | Yes.                                                                                                                                                                | Yes.                                                                                                                                                                   | Yes. The environmentally hazardous substance mark is not required.                  |

### Additional information

#### DOT Classification

- : This product is not regulated as a marine pollutant when transported on inland waterways in sizes of ≤5 L or ≤5 kg or by road, rail, or inland air in non-bulk sizes, provided the packagings meet the general provisions of §§ 173.24 and 173.24a.
- Limited quantity** Yes.
- Packaging instruction** Exceptions: 150. Non-bulk: 203. Bulk: 242.
- Quantity limitation** Passenger aircraft/rail: 60 L. Cargo aircraft: 220 L.
- Special provisions** B1, B52, IB3, T4, TP1, TP29

#### TDG Classification

- : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3), 2.7 (Marine pollutant mark). The marine pollutant mark is not required when transported by road or rail.
- Explosive Limit and Limited Quantity Index** 5
- Passenger Carrying Road or Rail Index** 60
- Special provisions** 16, 150

#### IMDG

- : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.
- Emergency schedules** F-E, S-E
- Special provisions** 223, 274, 955
- Flash point 27 °C C.C.

#### IATA

- : The environmentally hazardous substance mark may appear if required by other transportation regulations.
- Quantity limitation** Passenger and Cargo Aircraft: 60 L. Packaging instructions: 355. Cargo Aircraft Only: 220 L. Packaging instructions: 366. Limited Quantities - Passenger Aircraft: 10 L. Packaging instructions: Y344.
- Special provisions** A3

- Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

- Transport in bulk according to IMO instruments** : Not applicable.

## Section 15. Regulatory information

- U.S. Federal regulations** : TSCA 8(a) CDR Exempt/Partial exemption: Not determined

### TSCA 12(b) - Chemical export notification

Not applicable.

- Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Not listed

- Clean Air Act Section 602 Class I Substances** : Not listed

- Clean Air Act Section 602 Class II Substances** : Not listed

## Section 15. Regulatory information

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

### SARA 302/304

#### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

### SARA 311/312

**Classification** : FLAMMABLE LIQUIDS - Category 3  
ACUTE TOXICITY (inhalation) - Category 4  
SKIN SENSITIZATION - Category 1  
TOXIC TO REPRODUCTION - Category 2  
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2  
ASPIRATION HAZARD - Category 1

### SARA 313

This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

### State regulations

**Massachusetts** : The following components are listed: VINYLNORBORNENE  
**New York** : None of the components are listed.  
**New Jersey** : None of the components are listed.  
**Pennsylvania** : None of the components are listed.  
**Illinois** : None of the components are listed.

### Inventory list

**Australia inventory (AIRC)** : Not determined.  
**Canada inventory (DSL-NDSL)** : At least one component is not listed in DSL but all such components are listed in NDSL.  
**China inventory (IECSC)** : All components are listed or exempted.  
**Japan inventory (CSCL)** : All components are listed or exempted.  
**Japan inventory (Industrial Safety and Health Act)** : All components are listed or exempted.  
**New Zealand Inventory of Chemicals (NZIoC)** : All components are listed or exempted.  
**Philippines inventory (PICCS)** : All components are listed or exempted.  
**Korea inventory (KECI)** : All components are listed or exempted.  
**Taiwan Chemical Substances Inventory (TCSI)** : All components are listed or exempted.  
**United States inventory (TSCA 8b)** : All components are active or exempted.

## Section 16. Other information

### Hazardous Material Information System (U.S.A.)

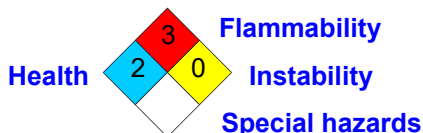
|                  |   |   |
|------------------|---|---|
| Health           | * | 3 |
| Flammability     |   | 3 |
| Physical hazards |   | 0 |
|                  |   |   |

## Section 16. Other information

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

### National Fire Protection Association (U.S.A.)



### Procedure used to derive the classification

| Classification                                                  | Justification         |
|-----------------------------------------------------------------|-----------------------|
| FLAMMABLE LIQUIDS - Category 3                                  | On basis of test data |
| ACUTE TOXICITY (inhalation) - Category 4                        | Calculation method    |
| SKIN SENSITIZATION - Category 1                                 | Calculation method    |
| TOXIC TO REPRODUCTION - Category 2                              | Calculation method    |
| SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 | Calculation method    |
| ASPIRATION HAZARD - Category 1                                  | Calculation method    |

### History

**Date of issue/Date of revision** : 10 September 2024

**Date of previous issue** : 26 February 2024

**Version** : 2.01

**Key to abbreviations** : ATE = Acute Toxicity Estimate  
 BCF = Bioconcentration Factor  
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
 IATA = International Air Transport Association  
 IBC = Intermediate Bulk Container  
 IMDG = International Maritime Dangerous Goods  
 LogPow = logarithm of the octanol/water partition coefficient  
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
 N/A = Not available  
 SGG = Segregation Group  
 UN = United Nations

**References** : Not available.

Indicates information that has changed from previously issued version.

**Product code** : 1148799\_13633108

### Notice to reader

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5-VINYL-2-NORBORNENE