

SAFETY DATA SHEET

INEOS
Oligomers

ALPHA OLEFIN C12

Section 1. Identification

Product identifier : ALPHA OLEFIN C12
Product code : SDS#: 0000000167
Chemical name : dodec-1-ene
Other means of identification : 1-dodecene; Dodec-1-ene
Product type : Liquid.

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

Product use : Not available.
Area of application : Consumer applications, Industrial applications, Professional applications.

Identified uses

Manufacture of substance - Industrial
Distribution of substance - Industrial
Intermediate. - Industrial
Formulation - Industrial
Cleaning Products - Industrial
Use in oil and gas field drilling and production operations - Industrial
Use in lubricants - Industrial
Use in polymer processing - Industrial
Coating. - Professional
Cleaning Products - Professional
Use in oil and gas field drilling and production operations - Professional
Use in lubricants - Professional
Use in functional fluids - Professional
Coating. - Consumer
Cleaning Products - Consumer
Use in lubricants - Consumer

Uses advised against

None known.

Reason

-

Supplier's details : INEOS Canada Partnership
PO Box 890
Red Deer, AB T4N 5H3

e-mail address of person responsible for this SDS : Email: OLIGOMERSMSDS@ineos.com
Telephone no.:1-866-363-2454

Emergency telephone number (with hours of operation) : Canada: 1 (613) 996-6666 CANUTEC

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Canada

ENGLISH

Section 2. Hazard identification

Classification of the substance or mixture : H227 FLAMMABLE LIQUIDS - Category 4
H304 ASPIRATION HAZARD - Category 1
Health Hazards Not Otherwise Classified - Category 1

GHS label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: H227 - Combustible liquid.
No code - Prolonged or repeated contact may dry skin and cause irritation.
H304 - May be fatal if swallowed and enters airways.

Precautionary statements

General

: P103 - Read label before use.
P102 - Keep out of reach of children.
P101 - If medical advice is needed, have product container or label at hand.

Prevention

: Do not ingest.
P280 - Wear protective gloves. Wear protective clothing. Wear eye or face protection.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response

: P301 + P310 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.

Storage

: P405 - Store locked up.

Disposal

: P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements

: Avoid contact with skin and clothing. Wash thoroughly after handling.

Other hazards which do not result in classification : Repeated exposure may cause skin dryness or cracking.

Section 3. Composition/information on ingredients

Substance/mixture : Substance
Chemical name : dodec-1-ene
Other means of identification : 1-dodecene; Dodec-1-ene

CAS number/other identifiers

CAS number : 112-41-4

Ingredient name	% (w/w)	CAS number
Dodec-1-ene	>90	112-41-4
Dec-1-ene	<5	872-05-9
tetradec-1-ene	<5	1120-36-1

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

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

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Section 4. First-aid measures

Description of necessary first aid measures

- Eye contact** : 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.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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 adverse health effects persist or are severe. 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.
- Skin contact** : Wash skin thoroughly with soap and water or use recognised skin cleanser. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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** : No known significant effects or critical hazards.
- Skin contact** : Defatting to the skin. May cause skin dryness and irritation.
- Ingestion** : May be fatal if swallowed and enters airways. Do not ingest. If swallowed then seek immediate medical assistance.

Over-exposure signs/symptoms

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

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

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Firefighting measures

Extinguishing media

Suitable extinguishing media : In case of fire, use water spray (fog), foam, dry chemical or CO₂.

Unsuitable extinguishing media : Do not use water jet.

Specific hazards arising from the chemical : Combustible liquid. 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.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Remark : May form explosive mixtures with air.
Slightly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : 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 spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised 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".

Environmental precautions : Avoid dispersal of spilt 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).

Methods and material for containment and cleaning up

Small spill : 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.

Section 6. Accidental release measures

- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach the 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 spilt product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not swallow. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. 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. 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.

- 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 unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Dec-1-ene	AIHA WEEL (United States, 7/2018). TWA: 100 ppm 8 hours.

- 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, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Section 8. Exposure controls/personal protection

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. 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.

The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

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.

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 : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid.
Colour : Clear. Colourless.
Odour : Hydrocarbon.
Odour threshold : Not available.
pH : Not available.
Melting point : -36°C (-32.8°F)

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Section 9. Physical and chemical properties

Boiling point	: 213 to 216°C (415.4 to 420.8°F)
Flash point	: Closed cup: 77°C (170.6°F)
Evaporation rate	: Not available.
Flammability (solid, gas)	: Not applicable.
Lower and upper explosive (flammable) limits	: Lower: 0.4% Upper: 4.7%
Vapour pressure	: 0.027 kPa [room temperature]
Vapour density	: Not available.
Relative density	: 0.76
Solubility	: Not available.
Solubility in water	: <0.1 %
Partition coefficient: n-octanol/water	: Not available.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Viscosity	: Kinematic (40°C (104°F)): 1.3 mm ² /s (1.3 cSt)

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. Under normal conditions of storage and use, hazardous polymerisation will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not swallow.
Incompatible materials	: Reactive or incompatible with the following materials: oxidizing materials
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

Mutagenicity

Conclusion/Summary : No component of this product at levels greater than 0.1% is classified by established regulatory criteria as a mutagen.

Carcinogenicity

Conclusion/Summary : No component of this product at levels greater than 0.1% is identified as a carcinogen by ACGIH, the International Agency for Research on Cancer (IARC) or the European Commission (EC).

Reproductive toxicity

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Section 11. Toxicological information

Conclusion/Summary : No known significant effects or critical hazards.

Teratogenicity

Conclusion/Summary : No component of this product at levels greater than 0.1% is classified by established regulatory criteria as teratogenic or embryotoxic.

Aspiration hazard

Name	Result
dodec-1-ene	ASPIRATION HAZARD - Category 1
dec-1-ene	ASPIRATION HAZARD - Category 1
tetradec-1-ene	ASPIRATION HAZARD - Category 1

Information on likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : Defatting to the skin. May cause skin dryness and irritation.

Ingestion : May be fatal if swallowed and enters airways. Do not ingest. If swallowed then seek immediate medical assistance.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
dryness
cracking

Ingestion : Adverse symptoms may include the following:
nausea or vomiting

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

Conclusion/Summary : Not available.

General : Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Section 11. Toxicological information

- Developmental effects** : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
dodec-1-ene	EC50 >0.00093 mg/l [Solubility] EC50 >0.0028 mg/l [Solubility] LC50 >0.0034 mg/l [Solubility]	Algae Daphnia Fish	72 hours 48 hours 96 hours

Conclusion/Summary : Not available.

Persistence and degradability

Conclusion/Summary : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
dodec-1-ene	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
dodec-1-ene	-	2.32	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : This product is not likely to move rapidly with surface or groundwater flows because of its low water solubility. This product is not likely to volatilise rapidly into the air because of its low vapour pressure.

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


Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimised 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. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

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Section 13. Disposal considerations

Section 14. Transport information

	TDG Classification	DOT Classification	ADR/RID	IMDG	IATA
UN number	Not regulated.	NA1993	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	Combustible liquid, n.o.s. (1-dodecene). Marine pollutant (1-dodecene)	-	-	-
Transport hazard class(es)	-	Combustible liquid. 	-	-	-
Packing group	-	III	-	-	-
Environmental hazards	No.	Yes.	No.	No.	No.
Additional information	-	Only regulated as an MP under 49 CFR 172.101. Non-bulk packages (less than or equal to 119 gal) of combustible liquids, that are marine pollutants, are not regulated as hazardous materials, unless transported by vessel. 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	-	Remarks Only regulated as an MP under 49 CFR 172.101(US DOT Regulation). The environmentally hazardous substance mark may appear if required by other transportation regulations.	The environmentally hazardous substance mark may appear if required by other transportation regulations.

Section 14. Transport information

		Yes. Packaging instruction Exceptions: 150. Non-bulk: 203. Bulk: 241. Quantity limitation Passenger aircraft/rail: 60 L. Cargo aircraft: 220 L. Special provisions 148, IB3, T1, TP1			
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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 Annex II of Marpol and the IBC Code
Proper shipping name : 1-dodecene
Ship type :
Pollution category :

Section 15. Regulatory information

Canadian lists

Canadian NPRI : None of the components are listed.
CEPA Toxic substances : None of the components are listed.
Canada inventory : listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : listed.
China : listed.
Europe : registered.
Japan : listed.

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Section 15. Regulatory information

New Zealand	:  Listed.
Philippines	:  Listed.
Republic of Korea	:  Listed.
Taiwan	:  Listed.
Turkey	:  Listed.
United States	:  Listed.

Section 16. Other information


History

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Key to abbreviations

: ATE = Acute Toxicity Estimate
: BCF = Bioconcentration Factor
: GHS = Globally Harmonized System of Classification and Labelling of Chemicals
: HPR = Hazardous Products Regulations
: 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
: UN = United Nations

Procedure used to derive the classification

Classification	Justification
 FLAMMABLE LIQUIDS - Category 4	On basis of test data
ASPIRATION HAZARD - Category 1	On basis of test data
Health Hazards Not Otherwise Classified - Category 1	On basis of test data

References : HPR = Hazardous Products Regulations

 Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy, quality or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.