



SAFETY DATA SHEET

1. IDENTIFICATION

PRODUCT IDENTIFIER

Product Name: CACTUS NORMAL PARAFFIN N-11
Reference Number: 01418

SUPPLIER'S DETAILS

Name ENEOS Corporation
Address 1-2, Otemachi 1-chome, Chiyoda-ku, Tokyo 100-8162 Japan
Phone +81-(0)3-6257-7298
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Contact Solvents & Normal Paraffin Group
Emergency Phone Number +81-(0)3-6257-7298
(Available time; 9:00am - 5:00pm JST on Monday - Friday)

RECOMMENDED USE OF THE CHEMICAL AND RESTRICTIONS OF USE

Chemical feedstock
Industrial use only. Do not use for medical or food without advice of experts.

2. HAZARDS IDENTIFICATION

This material is hazardous according to regulatory guidelines (see SDS Section 15).

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE:

Flammable liquids Cat 4
Specific target organ toxicity-single exposure Cat 3 (Respiratory tract irritation)
Aspiration hazard Cat 1
Hazardous to the aquatic environment, short-term (Acute) Cat 1
Hazardous to the aquatic environment, long-term (Chronic) Cat 1
Note Contents of ingredients with no acute toxicity information (oral/dermal/inhalation): 2%, 100%, 100%
Contents of ingredients with no ecological toxicity information : 2%

GHS LABEL ELEMENTS:

Pictogram:



Signal Word: Danger

Hazard Statements:

Physical:
H227 : Combustible liquid
Health:
H335 : May cause respiratory irritation
H304 : May be fatal if swallowed and enters airways
Environmental:
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

P233 : Keep container tightly closed.

P261 : Avoid breathing mist/vapours.

P271 : Use only outdoors or in a well-ventilated area.

P273 : Avoid release to the environment.

P280 : Wear protective gloves/protective clothing/eye protection/face protection.

Response:

P301+P310 : IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician.

P304+P340 : IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312 : Call a POISON CENTER/doctor/physician if you feel unwell.

P331 : Do NOT induce vomiting.

P370+P378 : In case of fire: Use foam, dry chemical or carbon dioxide(CO₂) to extinguish.

P391 : Collect spillage.

Storage:

P403 : Store in a well-ventilated place.

P403+P233 : Store in a well-ventilated place. Keep container tightly closed.

P405 : Store locked up.

Disposal:

P501 : Dispose of contents/container in accordance with local regulations.

OTHER HAZARDS WHICH DO NOT RESULT IN CLASSIFICATION:**Physical/Chemical Hazards**

Material can accumulate static charges which may cause an ignition. Material can release vapors that readily form flammable mixtures. Vapor accumulation could flash and/or explode if ignited. Combustible

Health Hazards

High-pressure injection under skin may cause serious damage.

Repeated exposure may cause skin dryness or cracking.

When heated, exposure for material vapor given off may result in eye, skin, or lung irritation.

Environmental Hazards

No additional hazards.

Note: Excessive exposure may result in respiratory irritation.

Exposure for material mist or vapor given off on heating may result in eye, nose, skin, or lung irritation.

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.

3. COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a substance.

Hazardous Substance(s) or Complex Substance(s)

Name	CAS RN®	Concentration*	GHS Hazard Codes
n-Undecane	1120-21-4	≥ 98.0 %	H226, H304, H335, H400, H410

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume. Concentration values may vary.

4. FIRST-AID MEASURES**DESCRIPTION OF NECESSARY FIRST-AID MEASURE****Inhalation**



Remove from further exposure. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation. When mouth-to-mouth resuscitation, responder should be careful to not expose material. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection.

Skin contact

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury. Remove contaminated clothing. Launder contaminated clothing before reuse. For those providing assistance, avoid further skin contact to yourself or others. Wear impervious gloves.

Eye contact

Flush thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical attention.

Ingestion

Seek immediate medical attention. Do not induce vomiting.

MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE AND DELAY

Repeated exposure on skin may cause dryness and result in skin irritation or cracking.

Exposure for material mist or vapor given off on heating may result in eye, skin, or respiratory irritation.

INDICATION OF MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED, IF NECESSARY

None

5. FIRE-FIGHTING MEASURES**EXTINGUISHING MEDIA**

Suitable Extinguishing Media: Foam, dry chemical, carbon dioxide (CO₂)

Inappropriate Media: Straight streams of water

SPECIFIC HAZARDS ARISING FROM THE CHEMICALS

Specific Hazards Arising from the Chemicals: Combustible liquid When heated, material can release vapors that readily form flammable mixtures. As material is hazardous, firefighters should consider protective equipment indicated in Section 8.

Hazardous Combustion Products: Incomplete combustion products, carbon monoxide, smoke, fume

SPECIFIC PROTECTIVE ACTIONS FOR FIRE-FIGHTERS**Specific protective actions for fire-fighter:**

Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Fire Fighting Instructions:

Evacuate non-emergency personal to safe area. Extinguish fire with appropriate media. Stop leak if you can do it without risk. Move container if you can do it without risk. Use water spray or fog for cooling tanks or containers surround fire. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop a leak or to move container. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Do not put water in the tank to prevent boil over.

6. ACCIDENTAL RELEASE MEASURES**PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES**

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required due to toxicity or flammability of the material. See Section 5 for fire fighting information. See the



Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: half-face or full-face respirator with filter(s) for spilled material and, when applicable, Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended.

Work gloves that are resistant to oil are recommended. Note: gloves made of polyvinyl alcohol (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

Notification Procedures

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. Evacuate non-emergency personal to safe area. Material is toxic or combustible. Advise occupants surrounding or in downwind areas to warn them to evacuate, if needed.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP

Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do it without risk. All equipment used when handling the product must be grounded. Use explosion-proof equipment and non-sparking tools.

Do not touch or walk through spilled material. Collect with pump, absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Prevent spreading of vapors through sewers, ventilation systems and confined areas. A vapor suppressing foam may be used to reduce vapors. Water spray may reduce vapor; but may not prevent ignition in closed spaces.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

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.

7. HANDLING AND STORAGE**PRECAUTIONS FOR SAFE HANDLING**

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present. Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance.

Potentially toxic/irritating fumes/vapors may be evolved from heated or agitated material. Use only with adequate ventilation. Prevent small spills and leakage to avoid slip hazard.

Material can accumulate static charges. When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present. Use proper bonding and/or ground procedures.

Avoid contact with material.

CONDITION FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area. Keep away from incompatible materials. Storage containers should be grounded and bonded. Fixed storage containers, transfer containers and associated equipment should be grounded and bonded to prevent accumulation of static charge.

Suitable Materials and Coatings (Chemical Compatibility): Stainless Steel, Steel, Teflon, Polyester



Unsuitable Materials and Coatings: Rubber, Polystyrene, Ethylene-Propylene rubber, Polyethylene

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

CONTROL PARAMETERS

Occupational exposure limits/standards (Note: Exposure limits are not additive)

No occupational exposure limits allocated

Biological limit values

No biological limits allocated

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

APPROPRIATE ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider: Use explosion-proof ventilation equipment to stay below exposure limits.

INDIVIDUAL PROTECTION MEASURES, SUCH AS PERSONAL PROTECTIVE EQUIPMENT (PPE)

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage. Any specific protective equipment information provided is based on published literature and protective equipment manufacturer data.

Eye/Face Protection:

If contact is likely, safety face protections are recommended.

Skin and Body Protection:

The types of clothing to be considered for this material include: Chemical, and oil resistant clothing is recommended.

Respiratory Protection:

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, if concentration is high, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include: for organic vapour/gas with mist filter

Hand Protection:

Use suitable protective glove. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

Oil/chemical resistant gloves (nitrile etc.) are recommended. If contact with forearms is likely, wear gauntlet style gloves.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing 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.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

9. PHYSICAL AND CHEMICAL PROPERTIES



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.

Physical State:	Liquid
Colour:	Colorless/Clear
Odour:	Mild paraffinic odor
Melting Point/Freezing Point:	-25 °C
Boiling Point or Initial Boiling Point and Boiling Range:	180.0 – 220.0 °C
Flammability :	Flammable liquid
Lower and Upper Explosion Limit	LEL: 0.7 (vol%) UEL: 5.5 (vol%)
/Flammable Limits (Approximate volume % in air):	
Flash Point:	≥ 63.0 °C
Auto-ignition Temperature:	214 °C
Decomposition Temperature:	No data
pH:	N/A
Kinematic Viscosity:	No data @40 °C, 1.098 mPat·s @25 °C
Solubility:	Negligible(0.05 g/L)
Partition Coefficient n-Octanol/Water (log value):	No data
Vapor Pressure:	54.9 Pa @ 25 °C
Density and/or Relative Density (at 20 °C):	0.7400 – 0.7500 g/cm ³ @15 °C
Relative Vapour Density (Air = 1):	5.4 at 101 kPa
Particle Characteristics:	N/D

10. STABILITY AND REACTIVITY

REACTIVITY: No reactivity under normal conditions.

CHEMICAL STABILITY: Material is stable under normal conditions.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization or reaction will not occur.

CONDITIONS TO AVOID: Flame and high energy source of ignition.

INCOMPATIBLE MATERIALS: Strong oxidizers, halogens, strong acids, strong bases, hot sulphur

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.
In fire, carbon monoxide can be generated.

11. TOXICOLOGICAL INFORMATION

Information described here are based on the data for this material, structurally similar materials and/or components.

Information	Conclusion/Remarks
Acute toxicity	
Oral LD50(rat):>2000mg/Kg	Not classified
Dermal No data available	Classification not possible
Inhalation (Vapour) LC50(rat) :>625ppm	Classification not possible



Skin corrosion/irritation Not adverse effect was observed	Classification not possible
Serious eye damage/irritation Adverse effect was observed, but not enough information for conclusion	Classification not possible
Sensitization	
Respiratory No data available	Classification not possible
Skin No data available	Classification not possible
CMR hazard	
Germ cell mutagenicity in vivo test; no data, in vitro test; negative	Classification not possible
Carcinogenicity No data available	Classification not possible
Reproductive toxicity No adverse effect was observed	Classification not possible
Additional category for effects on or via lactation No data available	Classification not possible
Specific target organ toxicity	
Single exposure Adverse effect was observed.(respiratory tract irritation)	Category 3 (respiratory tract irritation)
Repeated exposure No adverse effect was observed, but not enough	Classification not possible
Aspiration hazard	
This material is a hydrocarbon and has a dynamic viscosity ($\leq 20.5 \text{ mm}^2/\text{s}$) (40°C)	Category 1

OTHER INFORMATION

IARC Classification:None

12. ECOLOGICAL INFORMATION

Information described here are based on the data for this material, structurally similar materials and/or components.

TOXICITY

Expected to be very toxic to aquatic organisms.

Expected to be very toxic to aquatic organisms with long lasting effects.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Expected to be readily biodegradable.

Hydrolysis:

Transformation due to hydrolysis not expected to be significant.

Photolysis:

Transformation due to photolysis not expected to be significant.

Atmospheric Oxidation:

Expected to degrade rapidly in air

BIOACCUMULATION POTENTIAL



Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

MOBILITY IN SOIL

More volatile component -- Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids. High molecular wt. component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

OTHER ADVERSE EFFECTS**Hazard to the Ozone Layer**

Not expected to be harmful to ozone layer.

ECOLOGICAL DATA**Toxicity**

Test	Duration	Organism Type	Test Results
Aquatic - Acute Toxicity	48 hour(s)	Daphnia magna	EC50 0.011 mg/l

13. DISPOSAL CONSIDERATIONS**DISPOSAL METHODS**

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

Disposal Recommendations

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

Empty Container Warning

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.

14. TRANSPORT INFORMATION**LAND - Precautionary Transportation Measures & Conditions:**

Comply with applicable laws and regulations.

SEA (IMDG) / AIR (IATA)

UN Number: 3082
UN Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Transport Hazard Class(es): 9
Packing Group: III
Environmental hazards: Yes
EMS Number: F-A, S-F

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code :

Product Name: n-Alkanes (C10 – C20)
Pollution category: Y

15. REGULATORY INFORMATION



This material is considered hazardous according to the Classification of Chemicals based on Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS SPECIFIC FOR THE PRODUCT IN QUESTION

National Laws and Regulations:

Comply with applicable laws and regulations.

16. OTHER INFORMATION

N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):

H226 : Flammable liquid and vapour : Flammable liquids,Cat 3

H304 : May be fatal if swallowed and enters airways : Aspiration hazard,Cat 1

H335 : May cause respiratory irritation : Specific target organ toxicity, single exposure (Respiratory tract irritation),Cat 3

H400 : Very toxic to aquatic life : Hazardous to the aquatic environment, short-term (Acute),Cat 1

H410 : Very toxic to aquatic life with long lasting effects : Hazardous to the aquatic environment, long-term (Chronic),Cat 1

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