1. MATERIAL AND COMPANY IDENTIFICATION

Material Name : **SHOP C1014 7:3**
Uses : Use as an intermediate in industrial chemicals manufacture.
Product Code : V1400
Company : **Shell Chemical LP**
PO Box 576
HOUSTON TX 77001
USA
SDS Request : 1-800-240-6737
Customer Service : 1-855-697-4355

Emergency Telephone Number
Chemtrec Domestic (24 hr) : 1-800-424-9300
Chemtrec International (24 hr) : 1-703-527-3887

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Concentration
1-Decene	872-05-9	60.00 - 70.00 %W
1-Tetradecene	1120-36-1	30.00 - 40.00 %W

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance and Odour : Colourless. Liquid. Mild hydrocarbon.

Health Hazards : Harmful: may cause lung damage if swallowed. Irritating to skin. Vapours may cause drowsiness and dizziness.

Safety Hazards : Flammable liquid. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Will float and can be reignited on surface water.

Health Hazards
Inhalation : Vapours may cause drowsiness and dizziness.
Skin Contact : Irritating to skin.
Eye Contact : Moderately irritating to eyes.
Ingestion : Harmful: may cause lung damage if swallowed.
Signs and Symptoms : Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness and death. Other signs and symptoms of central nervous system (CNS) depression may include headache, nausea, and lack of coordination. Skin irritation signs and symptoms may include a

burning sensation, redness, swelling, and/or blisters. Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision. If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever. The onset of respiratory symptoms may be delayed for several hours after exposure.

4. FIRST-AID MEASURES

Inhalation	:	Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.
Skin Contact	:	Remove contaminated clothing. Immediately flush skin with large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment.
Eye Contact	:	Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
Ingestion	:	If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.
Advice to Physician	:	Potential for chemical pneumonitis. Consider: gastric lavage with protected airway, administration of activated charcoal. Call a doctor or poison control center for guidance.

5. FIRE-FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Flash point	:	ca. 46 °C / 115 °F (Closed cup)
Upper / lower Flammability or Explosion limits	:	1.0 - 5.0 %(V)
Specific Hazards	:	Carbon monoxide may be evolved if incomplete combustion occurs. Will float and can be reignited on surface water. The vapour is heavier than air, spreads along the ground and distant ignition is possible.
Suitable Extinguishing Media	:	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable Extinguishing Media	:	Do not use water in a jet.
Protective Equipment for Firefighters	:	Wear full protective clothing and self-contained breathing apparatus.
Additional Advice	:	Keep adjacent containers cool by spraying with water.

6. ACCIDENTAL RELEASE MEASURES

Protective measures	:	Avoid contact with spilled or released material. Immediately remove all contaminated clothing. For guidance on selection of personal protective equipment see Chapter 8 of this Safety Data

Sheet. For guidance on disposal of spilled material see Chapter 13 of this Safety Data Sheet. Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment (of product and fire fighting water) to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapour or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment.

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

Additional Advice : Observe all relevant local and international regulations. The vapour is heavier than air, spreads along the ground and distant ignition is possible.

7. HANDLING AND STORAGE

General Precautions : Avoid breathing vapours or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. On guidance on selection of personal protective equipment see Chapter 8 of this Safety Data Sheet.

Handling : Avoid contact with the skin. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (<= 1 m/sec until fill pipe submerged to twice its diameter, then <= 7 m/sec). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Handle and open container with care in a well-ventilated area. Do not empty into drains.

Storage : Bulk storage tanks should be diked (bunded). Keep away from aerosols, flammables, oxidizing agents, corrosives and from products harmful or toxic to man or to the environment. Must be stored in a well-ventilated area, away from sunlight, ignition sources and other sources of heat. Nitrogen blanket recommended.

Product Transfer : Keep containers closed when not in use. Do not use

compressed air for filling, discharging or handling.

Recommended Materials : For containers, or container linings use mild steel, stainless steel.

Unsuitable Materials : Copper. Copper alloys.

Container Advice : Containers, even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers.

Additional Information : Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
Ensure that all local regulations regarding handling and storage facilities are followed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
1-Tetradecene	SHELL IS	TWA (8 h)	100 ppm		

Additional Information : SHELL IS is the Shell Internal Standard.
Wash hands before eating, drinking, smoking and using the toilet. Launder contaminated clothing before re-use.

Exposure Controls : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:
Use sealed systems as far as possible. Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits. Local exhaust ventilation is recommended. Firewater monitors and deluge systems are recommended. Eye washes and showers for emergency use.

Personal Protective Equipment : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Respiratory Protection : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are unsuitable (e.g., airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter.
Respirator selection, use and maintenance should be in accordance with the requirements of the OSHA Respiratory

		Protection Standard, 29 CFR 1910.134. Where respiratory protective equipment is required, use a full-face mask.
Hand Protection	:	Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
Eye Protection	:	Chemical splash goggles (chemical monogoggles).
Protective Clothing	:	Chemical resistant gloves/gauntlets, boots, and apron (where risk of splashing).
Environmental Exposure Controls	:	Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

9. PHYSICAL AND CHEMICAL PROPERTIES

The physical and chemical property data are typical values and do not constitute a specification.

Appearance	:	Colourless. Liquid.
Odour	:	Mild hydrocarbon.
Boiling point	:	170.0 - 243.9 °C / 338.0 - 471.0 °F
Flash point	:	ca. 46 °C / 115 °F (Closed cup)
Upper / lower Flammability or Explosion limits	:	1.0 - 5.0 %(V)
Vapour pressure	:	< 0.033 psia at 25.0 °C / 77.0 °F
Specific gravity	:	0.754 at 15.6 °C / 60.0 °F
Water solubility	:	< 0.5 mg/l at 25 °C / 77 °F Negligible.
State of aggregation	:	Liquid/Solid
Stability		Stable.

10. STABILITY AND REACTIVITY

Stability	:	Stable under normal conditions of use.
Conditions to Avoid	:	Avoid heat, sparks, open flames and other ignition sources. Avoid exposure to air.
Materials to Avoid	:	Strong oxidising agents.
Hazardous Decomposition Products	:	Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.
Hazardous Reactions	:	Avoid contact with strong Lewis or mineral acids. Should be reacted with halogens only under controlled conditions. Free radical initiators should be avoided.

11. TOXICOLOGICAL INFORMATION

Basis for Assessment	:	Information given is based on product testing, and/or similar products, and/or components.
Acute Oral Toxicity	:	Low toxicity: LD50 >200mg/kg , Rat (1-Decene) Aspiration into the lungs when swallowed or vomited may cause

chemical pneumonitis which can be fatal.

Acute Dermal Toxicity : Low toxicity: LD50 >2000 mg/kg , Rabbit (1-Decene)

Acute Inhalation Toxicity : Low toxicity: LC50 >20 mg/l / 1 hours, Rat (1-Decene)
High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.

Skin corrosion/irritation : Irritating to skin. (1-Decene)

Serious eye damage/irritation : Moderately irritating to eyes.(1-Decene)

Material	:	**Carcinogenicity Classification**
1-Decene	:	GHS / CLP: No carcinogenicity classification
1-Tetradecene	:	GHS / CLP: No carcinogenicity classification

12. ECOLOGICAL INFORMATION

Acute Toxicity

Fish : Toxic: 1 < LC/EC/IC50 <= 10 mg/l

Aquatic crustacea : Expected to be toxic: 1 < LC/EC/IC50 <= 10 mg/l

Algae/aquatic plants : Expected to be harmful: 10 < LC/EC/IC50 <= 100 mg/l

Microorganisms : Low toxicity: LC/EC/IC50 > 100 mg/l

Mobility : Adsorbs to soil and has low mobility.
Floats on water.

Persistence/degradability : Readily biodegradable.

Bioaccumulation : Has the potential to bioaccumulate.

13. DISPOSAL CONSIDERATIONS

Material Disposal : Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.
Do not dispose into the environment, in drains or in water courses. Waste product should not be allowed to contaminate soil or water.

Container Disposal : Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not puncture, cut or weld uncleaned drums. Send to drum recoverer or metal reclaimer.

14. TRANSPORT INFORMATION

US Department of Transportation Classification (49CFR)

Identification number	UN 3295
UN proper shipping name	Hydrocarbons, liquid, n.o.s.
Class / Division	3
Packing group	III

Emergency Response Guide No. .	128

IMDG

Identification number	UN 3295
UN proper shipping name	HYDROCARBONS, LIQUID, N.O.S.
Technical name	(1-Decene)
Class / Division	3
Packing group	III
Marine Pollutant:	Yes (1-Decene)

IATA (Country variations may apply)

Identification number	UN 3295
UN proper shipping name	Hydrocarbons, liquid, n.o.s.
Class / Division	3
Packing group	III

Additional Information : This product may be transported under nitrogen blanketing. Nitrogen is an odourless and invisible gas. Exposure to nitrogen may cause asphyxiation or death. Personnel must observe strict safety precautions when involved with a confined space entry.

15. REGULATORY INFORMATION

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

Federal Regulatory Status

Notification Status

TSCA	All components listed.
AICS	All components listed.
DSL	All components listed.
INV (CN)	All components listed.
EINECS	All components listed.
ENCS (JP)	All components listed.
KOREA	All components listed.
PICCS (PH)	All components listed.

SARA Hazard Categories (311/312)

Immediate (Acute) Health Hazard.
Fire Hazard.

State Regulatory Status

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)

This material does not contain any chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

16. OTHER INFORMATION

HMIS Rating (Health, Fire, Reactivity)	:	2, 2, 0
NFPA Rating (Health, Fire, Reactivity)	:	2, 2, 0
SDS Version Number	:	1.3
SDS Effective Date	:	08/25/2017
SDS Revisions	:	A vertical bar (|) in the left margin indicates an amendment from the previous version.
SDS Regulation	:	The content and format of this MSDS is in accordance with the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
Uses and Restrictions	:	Chemical intermediate.
SDS Distribution	:	The information in this document should be made available to all who may handle the product
Disclaimer	:	The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.