Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Material Name : **CARADOL SP50-04**
Product Code : U318A

Other names / Synonyms : Polyol
Recommended use / Restrictions of use : Use for the manufacture of polyurethane products.

Supplier : SHELL EASTERN CHEMICALS (S)
A REGISTERED BUSINESS OF SHELL EASTERN TRADING (PTE) LTD (UEN:198902087C)
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Other Information : CARADOL is a trademark owned by Shell Trademark Management B.V. and Shell Brands Inc. and used by affiliates of Royal Dutch Shell plc.

2. HAZARDS IDENTIFICATION

GHS Classification : NOT HAZARDOUS

GHS Label Elements

Symbol(s) :
No symbol

Signal Words : No signal word

GHS Hazard statements : PHYSICAL HAZARDS:
Not classified as a physical hazard under GHS criteria.
HEALTH HAZARDS:
Not classified as a health hazard under GHS criteria.
ENVIRONMENTAL HAZARDS:
Not classified as an environmental hazard under GHS criteria.

GHS Precautionary Statements

Prevention : No precautionary phrases.

Response : No precautionary phrases.

Storage : No precautionary phrases.

Disposal: : No precautionary phrases.

Other Hazards which do not result in classification : Not classified as flammable but will burn.

Aggravated Medical Condition : Not expected to be a health hazard when used under normal conditions.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture Description : Suspension of a solid polymeric material in a polyether polyol.
Synonyms : Polyol

Classification of components according to GHS

Chemical Name	Synonyms	CAS	Hazard Class (category)	Hazard statement	Conc.
Polyoxyalkylene Triol		9082-00-2	None, None;	None;	90.00 %
Polyurethane		66991-59-1	None, None;	None;	10.00 %

4. FIRST-AID MEASURES

The first aid measures for different exposure routes:

Inhalation : Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.

Skin Contact : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available.

Eye Contact : Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.

Ingestion : Wash out mouth with water and obtain medical attention.

Notes to physician

Most important symptoms and effects, both acute and delayed : No specific adverse effects.

Immediate medical attention, special treatment : Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Specific Hazards : Will only burn if enveloped in a pre-existing fire. Hazardous combustion products may include: Carbon dioxide. Carbon monoxide. Unidentified organic and inorganic compounds. Toxic products.

Suitable Extinguishing Media	:	Large fires should only be fought by properly trained fire fighters. Alcohol-resistant 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.
Other Advice	:	All storage areas should be provided with adequate fire fighting facilities. Keep adjacent containers cool by spraying with water.

6. ACCIDENTAL RELEASE MEASURES

Observe all relevant local and international regulations. Avoid contact with spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. See Chapter 13 for information on disposal.

Personal Precautions, Protective Equipment and Emergency Procedures	:	Avoid contact with spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Avoid inhaling vapour and/or mists. Avoid contact with the skin.
Environmental Precautions	:	Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers. Use appropriate containment to avoid environmental contamination. Ventilate contaminated area thoroughly.
Methods and Material for Containment and Cleaning Up	:	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	:	Proper disposal should be evaluated based on regulatory status of this material (refer to Section 13), potential contamination from subsequent use and spillage, and regulations governing disposal in the local area.

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. For comprehensive advice on handling, product transfer, storage and tank cleaning refer to

		the product supplier.
Precautions for Safe Handling	:	In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. Use local exhaust extraction over processing area. Avoid unintentional contact with isocyanates to prevent uncontrolled polymerisation. Avoid contact with skin, eyes and clothing. Air-dry contaminated clothing in a well-ventilated area before laundering. Do not empty into drains. Handling Temperature: Ambient. When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
Conditions for Safe Storage	:	Prevent all contact with water and with moist atmosphere. Tanks must be clean, dry and rust-free. Prevent ingress of water. Must be stored in a diked (bunded) well-ventilated area, away from sunlight, ignition sources and other sources of heat. Nitrogen blanket recommended for large tanks (capacity 100 m3 or higher). Drums should be stacked to a maximum of 3 high. Shelf-life: 24 months provided conditions for safe storage are adhered to. It is advised to test for oxidation products and water content prior to use. Storage Temperature: Ambient. Storage should be handled at temperatures such that viscosities are less than 500 cSt; typically at 25-50 °C. Tanks should be fitted with heating coils in areas where the ambient temperatures are below the recommended product handling temperatures. Heating coil skin temperatures should not exceed 100 °C.
Product Transfer	:	Lines should be purged with nitrogen before and after product transfer. Keep containers closed when not in use.
Unsuitable Materials	:	Copper. Copper alloys.
Other Advice	:	Ensure that all local regulations regarding handling and storage facilities are followed. 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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

Occupational Exposure Limits

None established.

Additional Information	:	Wash hands before eating, drinking, smoking and using the toilet. Launder contaminated clothing before re-use.

Biological Exposure Index (BEI)

No biological limit allocated.

Appropriate Engineering Controls	:	Exhaust emission systems should be designed in accordance with local conditions; the air should always be moved away from the source of vapour generation and the person working at this point. Adequate ventilation to control airborne concentrations.

Individual Protection Measures	:	Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
Respiratory Protection	:	No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material.
Hand Protection	:	Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739, AS/NZS:2161) made from the following materials may provide suitable chemical protection: Incidental contact/Splash protection: PVC. Neoprene rubber. Nitrile rubber. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Thin disposable gloves should be avoided for long term use. When worn, use once and dispose. 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). Approved to EU Standard EN166, AS/NZS:1337.
Body protection	:	Chemical and cold resistant gloves/gauntlets, boots, and apron.
Thermal hazards	:	Not applicable
Monitoring Methods	:	Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available. National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods http://www.cdc.gov/niosh/ Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods http://www.osha.gov/ Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances, http://www.hse.gov.uk/ Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA), Germany. http://www.dguv.de/inhalt/index.jsp L'Institut National de Recherche et de Securité, (INRS), France http://www.inrs.fr/accueil
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

Appearance	:	White Viscous liquid.
Odour	:	Odourless
Odour threshold	:	Data not available.
pH	:	Data not available.
Initial Boiling point and boiling range	:	Data not available.

Melting / freezing point	:	Data not available.
Flash point	:	> 140 °C / 284 °F
Upper / lower Flammability or Explosion limits	:	Data not available.
Auto-ignition temperature	:	Data not available.
Flammability (solid, gas)	:	Data not available.
Vapour pressure	:	at < 150 °C / < 302 °FNot applicable
Relative Density	:	Data not available.
Density	:	1,020 kg/m3 at 25 °C / 77 °F
Water solubility	:	Slightly soluble.
Solubility in other solvents	:	Data not available.
n-octanol/water partition coefficient (log Pow)	:	Data not available.
Decomposition temperature	:	Note:: Stable., Hygroscopic., Polymerises exothermically with di-isocyanates at ambient temperatures., The reaction becomes progressively more vigorous and can be violent at higher temperatures if the miscibility of reaction partners is good or is supported by stirring or by the presence of solvents., Reacts with strong oxidising agents.
Dynamic viscosity	:	2,500 mPa.s at 20 °C / 68 °F
Kinematic viscosity	:	Data not available.
Vapour density (air=1)	:	at < 150 °C / < 302 °FNot applicable
Evaporation rate (nBuAc=1)	:	Data not available.

10. STABILITY AND REACTIVITY

Chemical stability	:	Stable. Hygroscopic. Polymerises exothermically with di-isocyanates at ambient temperatures. The reaction becomes progressively more vigorous and can be violent at higher temperatures if the miscibility of reaction partners is good or is supported by stirring or by the presence of solvents. Reacts with strong oxidising agents.
Conditions to Avoid	:	Heat, flames, and sparks.
Incompatible Materials	:	Avoid contact with isocyanates, copper and copper alloys, zinc, strong oxidizing agents, and water.
Hazardous Decomposition Products	:	Unknown toxic products may be formed.
Possibility of Hazardous Reactions	:	Data not available.
Sensitivity to Static Discharge	:	Data not available.

11. TOXICOLOGICAL INFORMATION

Information on Toxicological effects

Basis for Assessment	:	Information given is based on product testing, and/or similar products, and/or components.
Likely Routes of Exposure	:	Exposure may occur via inhalation, ingestion, skin absorption and skin or eye contact.

Acute Toxicity

Acute Oral Toxicity	:	Not expected to be a hazard. LD50 >2000 mg/kg , Rat
Acute Dermal Toxicity	:	Not expected to be a hazard. LD50 >2000 mg/kg , Rat
Acute Inhalation Toxicity	:	Not expected to be a hazard.
Skin Corrosion/Irritation	:	Expected to be non-irritating to skin.
Serious Eye Damage/Irritation	:	Expected to be non-irritating to eyes.
Respiratory Irritation	:	Not expected to be a respiratory irritant.
Respiratory or skin sensitisation	:	Not expected to be a skin sensitiser.
Aspiration hazard	:	Not considered an aspiration hazard.
Germ Cell Mutagenicity	:	Not expected to be mutagenic.
Carcinogenicity	:	Not expected to be carcinogenic.
Reproductive and Developmental Toxicity	:	Not expected to impair fertility. Not expected to be a developmental toxicant.
Specific target organ toxicity - single exposure	:	Not applicable
Specific target organ toxicity - repeated exposure	:	Not expected to be a hazard.

12. ECOLOGICAL INFORMATION

Basis for Assessment	:	Incomplete ecotoxicological data are available for this product. The information given below is based partly on a knowledge of the components and the ecotoxicology of similar products.

Ecotoxicity:

Acute Toxicity

Fish	:	Expected to have low toxicity: LC/EC/IC50 > 100 mg/l
Aquatic crustacea	:	Expected to have low toxicity: LC/EC/IC50 > 100 mg/l
Algae/aquatic plants	:	Expected to have low toxicity: LC/EC/IC50 > 100 mg/l
Microorganisms	:	Expected to have low toxicity: LC/EC/IC50 > 100 mg/l
Mobility	:	If product enters soil, one or more constituents will be mobile and may contaminate groundwater.
Persistence/degradability	:	Expected to be not readily biodegradable.
Bioaccumulative Potential	:	Does not bioaccumulate significantly, MW > 1000.
Other Adverse Effects	:	Small particles may have physical effects on aquatic and terrestrial organisms.

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. Send to drum recoverer or metal reclaimer.
Local Legislation	:	Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be in compliance.

14. TRANSPORT INFORMATION

Land (as per ADR classification): Not regulated
This material is not classified as dangerous under ADR regulations.

IMDG
This material is not classified as dangerous under IMDG regulations.

IATA (Country variations may apply)
This material is either not classified as dangerous under IATA regulations or needs to follow country specific requirements.

15. REGULATORY INFORMATION

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

Chemical Inventory Status

EINECS	:	All components listed or polymer exempt.
AICS	:	All components listed or polymer exempt.

Local Regulations

Workplace Safety and Health Act & Workplace Safety and Health (General Provision) Regulations	:	This product is not subject to control under this Act/ Regulation.
Environmental Protection and Management Act and Environmental Protection	:	This product is not subject to control under this Act/ Regulation.

and Management (Hazardous Substances) Regulations		
Maritime and Port Authority of Singapore (Dangerous Goods, Petroleum and Explosives) Regulations	:	This product is not subject to control under this Act/ Regulation.
Fire Safety Act and Fire Safety (Petroleum & Flammable Materials) Regulations	:	This product is not subject to control under this Act/ Regulation.

16. OTHER INFORMATION

Additional Information : For further information, contact your local Shell company or agent.

GHS Hazard statements

None None

SDS Version Number : 4.0

SDS Effective Date : 25.03.2014

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

Uses and Restrictions : Advice in this document relates only to product as originally supplied. Other derivative chemicals will have different properties and hazards. Advice should be sought on their safe handling and use.
Use for the manufacture of polyurethane products.

SDS Distribution : The information in this document should be made available to all who may handle the product

Disclaimer : This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.