

Cargo Handling Sheet

Non-Shell Product

**KLK Oleo PALMERA G997U
(Glycerin USP 99.7%)**

Document Date: 20 December 2024
Revision 2

*Cargo Handling Sheets are for the use of vessels
chartered by Shell Chemicals*

Information is obtained from supplier's SDS and other reference publications.

Product Details

Product Name: KLK Oleo PALMERA G997U (Glycerine USP 99.7%)
Shipping Name: Glycerine
Chemical Family: Alcohols, Glycols
Product Code: Non-Shell; KLK Oleo
SDS: Supplier to Provide

Physical Properties

Density: ca. 1.26 g/cm³ @ 20 °C / 68 °F
Viscosity: Not Available
Vapour Pressure: ca. < 0.01 hPa
Boiling Point: ca. 290 °C / 554 °F
Melting Point: ca. 18 °C / 64.4 °F
Flash Point: ca. 177 °C / 350.6 °F
Appearance: Colourless, Viscous

Note 1: Physical Properties are for reference only and valid as of date of this revision; see loading terminal for specific properties.

Transhipments

Prior to arranging transhipment, Charterers must agree to Owner's proposed plan

Marpol Details

Marpol Annex: Annex II
IMO Ship Type: 3; Must be Double Hulled
Inland Barge: Double Hull
IMO Pollution Category: Z; Chapter 18 product
IBC 16.2.6: No
IBC 16.2.9: No

Pre-Wash Required: No

Compatibility Group: USCG Compatibility Group 20

Cargo Handling Requirements

N2 Purge Cargo Tanks Prior Loading: No

N2 Blanket Required: Yes, PQ requirement; Max 5% O2; See notes below

Adjacent Space Purge: No

Loading Temperature Range: 50 – 55 °C; see Note 1 below

Transit Temperature Range: 48 – 52 °C; see Note 1 below

Discharge Temperature Range: 50 - 55 °C; see Note 1 below

Maximum Heating Coil Temperature: 70 °C

Adjacent Maximum Cargo Temperature: 55 °C; see Note 1 below

Note 1: Carrier to verify correct heating requirements with supplier.

Note 2: If Nitrogen blanket is in place and Carrier chooses to tranship, carrier must reapply nitrogen blanket on the cargo, both on the discharging and receiving vessel, at their time, risk, and expense.

Note 3: PQ = Product Quality

Note 4: N2 Blanket Guidance:

- a. O2 level in tanks: 5 % O2
- b. Vessel to maintain a constant nitrogen overpressure of 20 millibars or more during the voyage
- c. Surveyor to record in survey report the type of cargo monitoring system and nitrogen replenishment system used onboard the vessel
- d. Vessel to keep a daily N2 log of each tank:
 1. Tank pressure
 2. O2 level
 3. Tank Temperature

Log is to be presented to receiver at time of discharge and a copy sent to Charterers.

Regional Requirements

Note 1: Prior Cargo Restrictions are the same for Glycerine USP shipments as for Propylene Glycol USP shipments that can be found in the linked document "Restrictions for USP and NF Solvents".

Note 2: Glycerine USP shipments to Singapore are both Kosher and Halal and shall be handled accordingly.

Tank Acceptance Requirements

All nominated shipboard cargo handling systems are to be presented clean (residual free), dry, odor free, rust free, with good gaskets, fit to load this cargo.

Maintenance of heating coils is to be verified in the ship's log. If product is to be heated, heating coils are to be confirmed leak free. If product is not heated, heating coils are to be blown clear and dried with N2, and blanked off.

Gaskets in contact with the cargo must be renewed or be of Teflon construction.

Prior Cargoes and Adjacent Cargoes must be submitted to the Responsible Shell Chemical Charterer at least 10 days before the commencement of laycan to allow for the appropriate religious society review. This includes tank cleaning plans.

Tank cleaning must be appropriate for the prior cargo and include food-grade detergent wash if necessary and a final potable water rinse. This includes the cleaning of pumps, all cargo piping and stripping system, and any hard pieces and/or jumper hoses that will be used to load this cargo. Specific Kosher and Halal approved steaming guidance may be provided by the Responsible Shell Chemicals Charterer.

Stainless Steel Passivated Tanks (Clause 5, NIOP11D under Trading Rules)

- Stainless Steel tanks that have been passivated shall be considered as new buildings.
- Cargoes carried prior to the date of passivation shall not be considered as relevant.
- Carriers are required to provide independent verification of passivation upon request.
- Carriers should employ a passivation process recommended under the current version of ASTM A 967. NIOP acceptable media for passivation is listed under the ASTM guidelines and includes, but is not limited to, Nitric Acid and Citric Acid solutions.
- A cleaning certificate is required to be completed by the independent surveyor as part of their report.

Once inspected and accepted by the cargo surveyor jumper hoses provided by the vessel must be voyage dedicated. After loading, any ship's hoses used must be drained, blind flanged, and segregated for use at discharge.

Maintenance of heating coils is to be verified in the ship's log. If product is to be heated, heating coils are to be confirmed leak free and free of all prior product.

Stainless Steel or Coated Tanks:	Stainless Steel
Prior Cargo Restrictions:	Yes, see section below
Wall Wash Required:	Yes

Wall Wash Test:	Specification	Standard
Hydrocarbons	Pass	ASTM D1722

Chlorides < 1 ppm
Color Test < 5 Pt/Co Max

IMPCA 002-98
ASTM D1209

Appendix - Prior Cargo Restriction List – see appendix.

Last 3 Cargoes for nominated tanks and the tank cleaning plan shall be submitted to the Shell Chemicals Charterer no later than 10 days prior to the commencement of laycan and checked against the above linked Restricted Prior Cargo List.

- Last 3 cargoes shall be forwarded for Kosher and Halal review and approval.
 - The immediate last cargo cannot be on the Restricted Prior Cargo List.
 - If the 2nd and/or the 3rd last cargoes are on the Restricted Prior Cargoes List, it is highly recommended that a GC-MS analysis of the Glycerine USP is conducted prior to discharge.
 - Substances having a hazardous potential but not on the Restricted Prior Cargo List may also trigger a GC-MS analysis prior to discharge.
- In addition to the Restricted Prior Cargo List, the following cargoes may not be an immediate last cargo or adjacent cargo:
 - Tallow
 - Lard
 - Yellow grease
 - Fish oil
 - Milk
 - Wine
- **Adjacent Cargoes** must be submitted to the Shell Chemicals Charterer no later than 10 days prior to the commencement of laycan and checked against the Restricted Prior Cargo List. Adjacent cargoes will then be forwarded for Kosher and Halal review and approval.
 - If the adjacent tanks are discharged while the Glycerine USP is loaded onboard, any new cargoes loaded adjacent should comply with the Restricted Prior Cargo list.
 - The Carrier must notify the Shell Chemicals charterer of any proposed changes in adjacent cargoes so that these new cargoes may be included in GC-MS testing prior to discharge of the Glycerine.

Cargo Sampling, Analysis, and Retention Requirements

Sampling and analysis activities will be undertaken as a standard part of the cargo transfer process. These activities will be managed by the appointed surveyors on behalf of Shell Chemicals.

All Glycerine USP tanks shall be sealed by the 3rd party cargo surveyor and seal numbers recorded and included in the Surveyor's Report.

Safety Information and Incident Reporting

Safety Information:

For more detailed information, refer to the SDS or e-SDS for reportable spill/release quantities whether in the water, air or ground.

Incident Reporting:

International Registered Vessels: If an incident occurs call Shell International Trading and Shipping in London on (44) 207-934-7777.

Jones Act Vessels: call the Shell 24 hr. incident number at (1) 713-241-2532. The USA National Response Center telephone number is (1) 800-424-8802.

For additional marine cargo handling advice or information, contact Captain Shakhawet Hossain at (65) 6384 8512.

Disclaimer

The information contained in this publication is, to the best of our knowledge, true and accurate, but any recommendations or suggestions that may be made are without guarantee, since the conditions of use are beyond our control. Furthermore, nothing contained herein shall be construed as a recommendation to use any product in conflict with existing patents covering any material or its use.

Appendix - Prior Cargo Restriction List

Prohibited Adjacent Cargo and Prior Cargo List for Monopropylene Glycol (MPG) – USP, KKK Oleo PALMERA, and potential contamination sources.

NOTE: Substances not on this list having a hazardous potential will be checked by Shell's Chemical Marine Technical Advisor, Product Steward or Quality Manager for further evaluation.

This list is based in part on NIOP Unacceptable Prior Cargo List, FOSFA List of Banned Immediate Previous Cargoes and Codex Code of Practice for the Storage and Transport of Edible Fats and Oils in Bulk (Codex Alimentarius).

The criteria described in the CEFIC Guidelines for Handling and Distribution of Propylene Glycol USP/EP for all shipments in non-dedicated transportation equipment to protect end- users from product cross-contamination has been applied (see chapter 5.3 of this guideline).

- Chemical substances highlighted in red are prohibited adjacent cargos.
- Non-highlighted chemical substances are allowed as an adjacent cargo only after prior notification to Shell.
- Leaded products shall not be carried as the three previous cargoes.
- Ethylene Dichloride and Styrene Monomer shall not be carried as the three previous cargoes in organic coated tanks, or as the last cargo in stainless steel and inorganic coated tanks.

Substance	Reason To Be On The List
Acetaldehyde	Carcinogen cat 1B
Acetic acid	Strong acid
Acetone cyanohydrin	Reactive with water. Decomposes to form Hydrogen Cyanide. FOSFA list, Codex list
Acrylamide	Carcinogen cat 1B, sensitizer

Acrylic acid	Corrosive. FOSFA list, Codex list
Acrylates (see individual products in the list)	Sensitizers
Acrylonitrile	Carcinogen cat 2. Codex list
Adiponitrile	Toxic by ingestion. FOSFA list, Codex list
Alkyl and Alkyl compounds	Very reactive
Animal products including lard, tallow, etc.	Halal, Kosher
Aniline	Carcinogen and mutagen cat 2, sensitizer. FOSFA list, Codex list
Anisol	Mutagen cat 2
Ammonium Hydroxide	Strong base
Asphalt (paving asphalt, roofer's flux, etc.)	Petroleum product
Benzene including benzene mixtures	Carcinogen cat 1A. Codex list
1,3-butadiene	Carcinogen cat 1A. Codex list
Butyl acrylate	Sensitizer. FOSFA list, Codex list
C9 mixed aromatics	Contains xylenes, petroleum
Caprolactam	Harmful by all routes of exposure.
Carbon tetrachloride	Toxic by inhalation, carcinogen cat 2. FOSFA list, Codex list
Cardura E (trade name for glycidyl esters of versatic 911 acid)	Mutagen and reprox tox cat 2, skin irritating and sensitizing properties. FOSFA list, Codex list
Cashew nutshell liquid	Harmful by ingestion. Strong skin and respiratory sensitizer, symptoms may be delayed. Contact with eyes may cause permanent injury. FOSFA list, Codex list
Chlorinated compounds (examples in the list)	
Chloro benzenes	Harmful by inhalation, chronic aquatic toxicity
Chloroform	Carcinogen cat 2 and reprox tox cat 2, harmful by inhalation
Chloroprene	Carcinogen cat 1B. Codex list

Coal tar and coal tar pitch	Carcinogen cat 1A
Creosote (coal tar or wood)	Carcinogen cat 1B
Cresol (o,m,p and cresylates and cresylic acids)	Corrosive, toxic if contact with skin. Codex list
Cumene	Carcinogen cat 1B
Cyanates (see individual products in the list)	
Cyclohexane	Solvent limitation
Dibutylamine	Harmful by all routes of exposure. FOSFA list, Codex list
Dichloromethane	Codex list
Diethanolamine	Formation of nitrosamines, corrosive, toxic if swallowed. FOSFA list, Codex list
Diethylenetriamine	Corrosive, sensitizer. FOSFA list, Codex list
Diethylene glycol	Harmful if swallowed, USP
Diglycidyl ether of bisphenol A	Diglycidylethers are suspected carcinogens; together with bisphenol A - > discussion on hormone disrupting effects, sensitizer. Codex list
Diisopropylamine	Corrosive. FOSFA list, Codex list
1,2-Dimethoxyethane	Solvent to be limited. Reprox tox cat 1B
Dimethylformamide (DMF)	Reprox tox cat 1B
Diethyl phthalate	Reprox tox cat 1B
1,4 Dioxane	Solvent to be limited. Carcinogen cat 1B
Diphenyl methane diisocyanate (MDI)	Respiratory and skin sensitizer, carcinogen cat 2
Dipropylamine	Corrosive. Codex list
Divinylbenzene	Intermediate, associated with styrene FOSFA list, Codex list
Epichlorohydrin	Carcinogen cat 1B, corrosive, sensitizer FOSFA list

Epoxy resins (uncured)	Asthmogenic. FOSFA list, Codex list
Ethanol	Halal
Ethanolamine	Corrosive, harmful by all routes of exposure. Codex list
Ethyl acrylate	Sensitizer. Codex list
Ethylbenzene	IARC 2B
Ethyl hexyl acrylate	See other acrylates. Codex list
Ethylene dibromide	Carcinogen cat 1B, chronic aquatic toxicity, Codex list
Ethylene dichloride	Carcinogen cat 1B. FOSFA list, Codex list
Ethylenediamine	Corrosive, sensitizer. FOSFA list, Codex list
Ethylene glycol (Monoethylene glycol MEG)	Harmful if swallowed. USP, Codex list
Ethylene Glycol Ethers, such as: <ul style="list-style-type: none"> Ethylene glycol ethyl ether (ethoxy ethanol), Ethylene glycol ethyl ether acetate (ethoxy ethyl acetate), Ethylene glycol methyl ether acetate (methoxy ethylacetate), Ethylene glycol methyl ether (methoxy ethanol), Ethylene glycol monobutyl ether (butoxyethanol), Ethylene glycol monoalkyl ether) 	Several health hazards including reproductive toxicity. Codex list
Ethylene oxide	Carcinogen, mutagen and reprox tox cat 1B. Codex list
Formaldehyde	IARC 2A, carcinogen cat 1B, mutagen cat 2. Codex list
Furfuryl alcohol	Harmful by all routes of exposure, carcinogen cat 2. FOSFA list, Codex list
Gasoline	Petroleum product (may contain benzene)
Gas oil	Petroleum product (may contain benzene)
Gluteraldehyde	Fatal if inhaled, toxic if swallowed, sensitizer, corrosive, chronic aquatic toxicity. FOSFA list, Codex list
Hexamethylenediamine	Corrosive. FOSFA list, Codex list

Isoprene	Carcinogen cat 1B, mutagen cat 2, chronic aquatic toxicity
Isocyanates (TDI, MDI..)	Asthmogenic, very reactive. FOSFA list, Codex list
Kerosine	Petroleum product (may contain benzene)
Leaded petroleum or other leaded products (three previous cargos)	Petroleum product (may contain benzene)
Lube oil additives	FOSFA list, Codex list
Methyl acrylate	Sensitizer, harmful by all routes of exposure. FOSFA list, Codex list
Methylene chloride	Carcinogen cat 2
Methyl Isobutyl Ketone	IARC 2B Listing, Carcinogen cat 2
Methyl methacrylate monomer	Sensitizer. FOSFA list, Codex list
Methyl styrene monomer	Odour threshold. FOSFA list, Codex list
Methyl tertiary butyl ether	Odour threshold, irritant
Methylene diisocyanate (MDI)	See isocyanates
Methyl isocyanate	See isocyanates
Mineral oils	Petroleum product- skin and inhalation irritant. FOSFA list
Morpholine	Corrosive, harmful by all routes of exposure, IARC group 3. FOSFA list, Codex list
Morpholine ethanol	FOSFA list, Codex list
Naphthalene	Carcinogen cat 2, acute and chronic aquatic toxicity
Nitric acid	Codex list
Nitrobenzene	Carcinogen cat 2 and reprotox cat 1B
Nitropropane	Harmful by all routes of exposure. Codex list
Noxious cargoes	Ref NIOP

Palm Oil Mill Effluent, Palm Oil Mill Effluent oil and Empty Fruit Bunch oil and their derivatives	FOSFA list
Perchloroethylene	Carcinogen cat 2, chronic aquatic toxicity. FOSFA list, Codex list
Pesticides including biocides, insecticides, fungicides, herbicides, and rodenticides	See CEFIC guidelines.
Phenol	Mutagen cat 2, toxic by all routes of exposure, corrosive
Phthalates	IARC concluded not a human carcinogen (group 3) (effects in lab animals related to peroxisome proliferation). FOSFA list, Codex list
Polymethylenene polyphenylisocyanate	See isocyanates
n-propylamine	Corrosive, low odour threshold. FOSFA list, Codex list
Propylene oxide	Carcinogen and mutagen cat 1B. FOSFA list, Codex list
Pygas	Contains benzene
Pyridine	Harmful by all routes of exposure, IARC group 3, low odour threshold. FOSFA list, Codex list
Sodium Hydroxide	Strong base
Styrene monomer	IARC 2A, tainting, low odour threshold. FOSFA list, Codex list
Sulphuric acid	Strong acid
Tall oil	NIOP list, FOSFA list, Codex list
Tall oil fatty acid	NIOP list, FOSFA list, Codex list
Telone II (1-propene, 1,3-dichloro; 1,3-dichloropropene)	Fumigant. NIOP list, Codex list
Tetrahydrofuran	Carcinogen cat 2
Toluene	Reprotox cat 2, neurotox effects, Codex list
Toluene diisocyanate (TDI)	See isocyanates
Toluidine	Carcinogen cat 2, sensitizer, acute aquatic toxicity. Codex list

Transformer oil	FOSFA list (might contain PCB), Codex list
Trichloroethane	Harmful by inhalation, ozone-depleting properties; chlorinated compound. Codex list
Triethylene glycol	Falls into the group of glycols, Codex list
Tricresyl phosphate	Reprotox cat 2, sensitizer, acute and chronic aquatic toxicity
Used Cooking Oil	FOSFA list
Used Cooking Oil Methyl Esters	FOSFA list
Vinyl acetate monomer	Carcinogen cat 2, FOSFA list, Codex list
Vinyl chloride monomer	Carcinogen cat 1A, FOSFA list, Codex list
Xylene (mixed isomer and o-, m-, p-)	Harmful by inhalation/skin contact, contains ethyl benzene. Codex list