



**Shell Chemicals**

# Cargo Handling Sheet

Caradol MC28-02

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Revision 9

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

## Product Details

Product Name: Caradol MC28-02  
IMO Product Name: Glycerol, Propoxylated and Ethoxylated  
Chemical Family: Polyol  
Product Code: U3110

SDS: <http://www.shell.com/business-customers/chemicals/safe-product-handling-and-transportation/safety-data-sheets.html>

## Physical Properties

Density: 1021 kg/m<sup>3</sup> (20 °C / 68 °F)  
Dynamic Viscosity: 1400 mPa.s (25 °C / 77 °F)  
Vapor Pressure: <10 (hPa)  
Boiling Point: Typical > 180 °C / > 356 °F (Decomposes)  
Melting Point: Not Available  
Flash Point: > 140 °C / > 284 °F  
Appearance: Clear colourless liquid, no odour

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

**Note 2:** Hazard Identification: Not classified as a physical hazard or health hazard under GHS criteria; Polymerises exothermically with di-isocyanates at ambient temperatures. See SDS for full list of hazards and precautions.

## Transhipments

Prior to arranging transhipment Charterer must agree to Owner's proposed plan. When arranged by the Owner, Owner must ensure that all transhipment vessels comply with the requirements of this cargo handling sheet.

## Marpol Details

Marpol Annex: II  
IMO Ship Type: 3, must be double hulled  
Inland Barges: Double Hull

IMO Pollution Category:	Z
IBC16.2.6:	No
IBC 16.2.9:	No
Pre-Wash Required:	No
Compatibility Group:	USCG group 40, not compatible with group 12 Isocyanates.

### Cargo Handling Requirements

N2 Purge Cargo Tanks Prior Loading:	No
N2 Blanket Required:	Yes, PQ requirement; Max 5% O <sub>2</sub> , see Notes below and Regional Requirements.
Adjacent Space Purge:	No
Loading Temperature Range:	45 – 52 °C / 113 - 126 °F
Transit Temperature Range:	40 – 55 °C / 104 – 131 °F (International) 35 – 40 °C / 95 – 104°F (Seraya to Rotterdam)
Discharge Temperature Range:	40 – 55 °C / 104 – 131 °F (International) 38 – 40 °C / 100 – 104 °F (Seraya to Rotterdam)
Maximum Heating Coil Temperature:	< 100 °C / 212 °F
Maximum Adjacent Temperature:	55 °C / 131 °F

**Note 1:** 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 ship, at their time, risk, and expense.

**Note 2:** PQ = Product Quality

**Note 3:** N2 Blanket Guidance:

- a. O<sub>2</sub> level in tanks to be maintained below 5% O<sub>2</sub>, See Regional Requirements
- b. Vessel to maintain a constant nitrogen overpressure of 20 millibars or more during the voyage
- c. DAILY LOG: During the voyage the vessel shall maintain a daily log of the following and the log shall be sent to the Shell Charterers/Planners at the time of discharge.
  1. Tank pressure
  2. O<sub>2</sub> level
  3. Tank Temperature

### Regional Requirements

**Note 1:** On voyages between Saraya and Rotterdam, vessel should discharge at no higher than 40 °C / 104 °F to comply with receiving facility requirements. Slow pumping rate / additional ROB may be experienced.

**Note 2:** Inter-Europe Voyages: no N2 blanket required for voyages < 3 days

## 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.

**Stainless Steel or Coated Tank:** All coatings allowed except for Zinc; Carrier to verify suitability of coating.

**Banned Prior Cargo:** No

**Wall Wash Required:** Yes; all conducted with Methanol except PH test, which uses DI water

**Coated Tanks:** WWT conducted by cargo surveyor.

**Stainless Steel Tanks:** verification of shipboard WWT may be accepted if below specs are met. (Send WWT Verification to the responsible Shell Chemicals charterer and present to cargo surveyor and loading master at loading terminal.)

Wall Wash Test:	Specification	Standard
Hydrocarbons	Pass	ASTM D1722
Chlorides	< 5 ppm	IMPCA 002-98
Color Test	< 5 Pt/Co Max	ASTM D1209
Appearance:	Clear, free of suspended matter	ASTM D4176
Pernamganate:	> 30 minutes	ASTM D1363

**Additional WWT for Coated Tanks if Prior Cargo is:**

Prior Cargo	Wall Wash Test:	Specification	Standard
Oils, Waxes, Veg Oils, Fame	NVM	100 ppm	ASTM D1353
Acids, Alkalis	PH Test	6.9 – 7.1	ASTM E70

**Link to:** [WWT Verification Form](#)

## Safety Information and Incident Reporting

### Safety Information:

HSSE information can be found in the SDS or e-SDS.

### Incident Reporting:

All incidents should be reported in accordance with regulations and charter party requirements.

International Registered Vessels: If an incident occurs call Shell International Trading and Shipping in London on +442079347777.

Jones Act Vessels: call the Shell 24 hr. incident number at +17132412532. The USA National Response Center telephone number is +1 8004248802.

For additional marine cargo handling advice or information, contact the responsible regional Shell Chemicals Marine Technical Advisor.



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