



SHELL CARGO HANDLING SHEET

CARADOL MC28-02

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

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Revision no. 11

Product Details

Trade Names:	CARADOL MC28-02
IMO Product Name:	Glycerol, Propoxylated and Ethoxylated
Chemical Family:	Polyols

[Link to Safety Data Sheet](#)

Physical Properties

Density:	1,021 kg/m ³ (20°C / 68°F)
Dynamic Viscosity:	1,400 mPa.s (25°C / 77°F)
Vapor Pressure:	<10 hPa
Boiling Point:	>180°C / >356°F (Decomposes)
Melting Point:	Not Available
Flash Point:	> 197°C / > 285°F
Appearance:	Clear; colourless; odourless

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; Polymerizes exothermically with di-isocyanates at ambient temperatures. See SDS for full list of hazards and precautions.

MARPOL Details

MARPOL Annex:	II
IMO Ship Type:	3, must be double hull
Inland Barge:	Double Hull
IMO Pollution Category:	Z
IBC 16.2.6:	No
IBC16.2.7:	No
IBC 16.2.9:	No
Pre-Wash Required:	No
Compatibility Group:	USCG compatibility group 40

Cargo Handling Requirements

N2 Purge Cargo Tanks Prior Loading:	Not a Product Quality requirement
N2 Blanket Required:	Yes, Product Quality requirement; Max 5% O ₂ , see Notes and Regional Requirements, below.
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)
Unloading 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 transship, carrier must reapply nitrogen blanket on the cargo, both on the discharging and receiving ship, at their time, risk, and expense.

Note 2: N2 Blanket Guidance:

- a. O₂ level in tanks to be maintained below 5% O₂, 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 record the following at least once a day and the record shall be sent to the Shell Charterers/Planners after the completion of unloading.
 1. Tank pressure
 2. O₂ level
 3. Tank Temperature

Regional Requirements

Note 1: On voyages between Saraya Singapore 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

Transshipments

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

Tank Acceptance Requirement

Banned Prior Cargo:	No
Stainless Steel or Coated Tanks:	All coatings allowed except for Zinc; Carrier to verify suitability of coating; see Regional Requirements

Note 1: Vessels offered for loading into coated tanks:

- Carrier to verify suitability of coating.
- For newly coated tanks, either partially or fully recoated, the tanks must have carried 3 or more cargoes for a total of >90days at >90% full.
- Tank Coating Condition Questionnaire submitted to Charterers for review prior to fixing a coated vessel.
- Coated tanks to be in very good condition with minimal blistering or breakdown, < 0.5% total tank area.
- All blisters to be scraped to hard coating.
- All defects to be noted in Survey Report
- Pipelines and fittings to be stainless steel

All nominated shipboard cargo handling systems are to be presented clean (residual free), dry, odour 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.

Wall Wash Test Requirement

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 charterer and present to cargo surveyor and loading master at loading terminal.) WWT Verification form is available in the supporting documents section on the CHS Website

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

Additional WWT for Coated Tanks if Prior Cargo is:

Prior Cargo	Test	Required result	Method
Oils, Waxes, Veg Oils, Fame	NVM	100 ppm	ASTM D1353
Acids, Alkalis	PH Test	6.9 - 7.1	ASTM E70

Safety Information and Incident Reporting

Safety Information: Refer the SDS (Safety Data Sheet) or e-SDS.

Incident Reporting: All incidents should be reported in accordance with regulations and charter party requirements. For additional marine cargo handling advice or information, contact the regional Chemical Marine Technical Advisor.



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