



**Shell Chemicals**

# Cargo Handling Sheet

Ethylene Glycol - All Grades

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Revision 20

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

## Product Details

Product Name:	Ethylene Glycol
IMO Product Name:	Ethylene Glycol
Chemical Family:	Glycol
Product Code:	U1281 (EG AF), U1284 (EG IG), U1285 (EG FG), U1286 (EG FG)

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

## Physical Properties (for EG FG; for other grades, see SDS)

Density:	1113 kg/m <sup>3</sup> (20 °C / 68 °F)
Dynamic Viscosity:	16.1 mPa.s (25 °C / 77 °F)
Vapor Pressure:	<10 (Pa) (20 °C / 68 °F)
Boiling Point:	196 - 200 °C / 385 - 392 °F
Melting Point:	-13 °C / 8.6 °F
Flash Point:	115 °C / 239 °F
Appearance:	Slightly viscous liquid, colourless; Mild 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 under GHS criteria; See SDS for full list of hazards and precautions.

## Transshipment

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.

## Marpol Details

Marpol Annex:	II
IMO Ship Type:	3; Must be Double Hulled
Inland Barge:	Double Hull
IMO Pollution Category:	Change from Y to Z (IBC 2021)
IBC 16.2.6:	No

IBC 16.2.9:	No
Pre-Wash Required:	No
Cargo Compatibility:	USCG compatibility group 20, not compatible with group 12 Isocyanates

### Cargo Handling Requirements

N2 Purge Cargo Tanks Prior Loading:	No
N2 Blanket Required:	Yes, PQ requirement; see Notes below and Regional Requirements
Adjacent Space Purge:	No
Loading Temperature Range:	Ambient
Transit Temperature Range:	Ambient
Unloading Temperature Range:	Ambient
Maximum Heating Coil Temperature:	Blanked off
Adjacent Maximum Cargo Temperature:	50 °C

**Note 1:** For quality purposes, this product should not be carried in tanks serviced by cargo pump rooms.

**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: See Regional Requirements
- b. Vessel to maintain a constant nitrogen overpressure of 20 millibars or more during the voyage
- c. Vessel to keep a daily N2/Temperature log of each tank:
  1. Tank pressure
  2. O2 level
  3. Tank Temperature

N2/Temperature Log is to be sent to the Shell Charterer/Planner at time of unloading.

**Note 5:** Any single seal tank hatches should have the gasket reinforced with silicone.

**Note 6:** Padding should be carried out using high purity nitrogen (> 98.0 %). The preferred method is to introduce the nitrogen through a small tank lid, fitted with a suitable hose connection, at one end of the tank away from the main tank hatch. The nitrogen is introduced through the small tank lid from where it will flow to the tank hatch, and out the vent line. If this method cannot be used, the nitrogen must be bubbled through the drop line until the required oxygen reading is obtained. Using this method, the tank should be retested after 24 hours and topped up as necessary.

## Regional Requirements

**Note 1:** Padding tanks: Unless otherwise agreed with the customer, glycol tanks will be padded as follows:

- Cross-Harbour barge
  - No requirements to blanket if load terminal to unload terminal voyage < 8 hours
- Inter Europe Voyage  $\leq 5$  days
  - EG Fibre grade - Oxygen content max 10%
  - EG Industrial and EG Antifreeze – No N2 blanket required
- Inter Europe Voyages > 5 days but  $\leq 10$  days:
  - EG Fibre grade - Oxygen content max 3%.
  - EG Industrial and EG Antifreeze - Oxygen content max 10%
- International voyages
  - EG – all Grades - Oxygen content max 3%
- FOB sales: as per receiver's requirements
- Padding may be waived with customer's or supply manager's written agreement

**Note 2:** see further regional requirements under Wall Wash section.

## 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 Tanks:** Stainless preferred; Zinc coating prohibited

### Vessels offered for Ethylene Glycol Loading with Coated Tanks:

- Carrier to verify suitability of coating
- 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
- All blisters to be scraped to hard coating
- All defects to be noted by the surveyor
- Pipelines and fittings to be of stainless steel

**Note 1:** Coating breakdown to be < 0.5% total tank area. Surveyor to record coating condition.

**Note 2:** 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.

### Banned Prior Cargo:

**Stainless Steel Tanks:** If prior cargo has polymerizing properties, shipboard personnel should be additionally vigilant for residues.

**Coated Tanks** - See [Appendix to Ethylene Glycol CHS](#) for list of banned prior cargoes  
Banned prior cargoes do not apply to Interline 9001 coated tanks.

**Wall Wash Required:** Yes; 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.)

Inter Europe Voyages <10 days - wall wash required for Fibre Grade only.

### Wall Wash Specifications:

An ASTM E2664-09a standard methanol wall wash should be taken from at least four spots (at least 6" width and 6' height) on each bulkhead, and four spots on the tank top.

Wall Wash Test:	Specification	Standard
Appearance	Clear bright and particle free	ASTM D4176
Hydrocarbons	Pass	ASTM D1722
Chlorides	< 0.5 ppm	ASTM E2469
Colour Test	< 5 Pt/Co Max	ASTM D1209

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

Prior Cargo	Wall Wash Test:	Specification	Standard
Acrylate	PPT	> 30 minutes	ASTM D1363
Oils, Waxes, Veg Oils, Fame	NVM	100 ppm	ASTM D1353
Acids, Alkilis	PH Test	6 – 8	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 +18004248802.

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



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