

EO/EG PLANT

Ethylene oxide (EO) is an important intermediate product that is used for the production of a wide range of products. A major portion of ethylene oxide at the EO plant reacts with water to yield 443,000 ton/year of different grades of glycols. Ethylene glycol is used for the production of synthetic fibers, films, automotive coolant and antifreeze. Other applications include unsaturated polyester resins, paper, protection shields, production of paints and inks. EO is used to produce antiseptics, pesticides and numerous other products.





MEG/DEG/TEG

The plant design capacity is 400 kta MEG under shell (Netherlands) license.

The primary design case is based on production of MEG as main product and DEG and TEG as by- products.

Below table provides a summary of the design case.

BASE CASE		
MEG	Kta	400
DEG	Kta	40
TEG	Kta	2.8
HP EO	kta	0



MEG

Appearance	Colourless, transparent
Purity	99.8 wt % min
Colour (Pt-Co)	5 max
DEG	0.08 wt % max
Water	0.08 wt % max
Specific gravity, 20/20 C	1.1151-1.1156
Boiling range at 0.1013 Mpa	
5% vol	Min.196 C
95% vol	Max.199 C
Aldehydes (as formaldehyde)	8 mg/kg max
Acidity (as acetic acid)	10 mg/kg max
Iron (as Fe)	0.1 mg/kg max
Inorganic chlorides (as Cl)	0.05 mg/kg max
Ash	50 mg/kg max By Req=10 mg/kg max
UV Transmittance	
-220nm	80 min
-275nm	95 min
-350 nm	99 min

Commercial uses:

MEG(Monoethylene Glycol): Antifreeze engines, production of polyethylene terephthalate (polyester fibers, film, and bottles) and heat transfer liquids.



DEG

Appearance	Colourless, transparent
Purity	99.8 wt % min
MEG	0.05 wt % max
TEG	0.05 wt % max
Water	0.05 wt % max
Colour (Pt-Co)	10 max
Specific Gravity, 20/20 C	1.1175-1.1195
Boiling range at 0.1013 Mpa	
5% vol	Min 242 C
95% vol	Max 250 C
Acidity (as acetic acid)	50 mg/kg max
Ash	50 mg/kg max

Commercial uses:

DEG (Diethylene Glycol): Polyurethanes, polyesters, softeners (Cork, glue, casein and paper), plasticizers, gas drying, solvents, and de-icing of aircraft and runways.



TEG

Appearance	Colourless, transparent
Purity	99 wt % min
DEG	1 wt % max
PEG	0.1 wt % max
Water	0.05 wt % max
Colour (Pt-Co)	25 max
Ash	100 mg/kg max
Boiling range at 0.1013 Mpa	
5% vol	Min 280 C
95%	Max 295 C
Specific gravity, 20/20 C	1.124-1.126

Commercial uses:

TEG(Triethylene Glycol): Lacquers, solvents, plasticizer, gas drying, and humectants (moisture - retaining agents).



CO₂ SPEC

COMPONET	wt %
EO	0.0
ACAL	-
H ₂ O	6.8
MEG	0.0
DEG	-
TEG	-
TTEG	-
N ₂	-
AR	-
O ₂	-
CH ₄	0.0
C ₂ H ₄	0.0
C ₂ H ₅	-
CO ₂	93.2
H ₂	-
FA	-
NAOH	-
NAHCO ₃	-
K ₂ CO ₃	-
KHCO ₃	-