

Gas Cracking plant

With an annual out-put capacity of 1.100.000 tons of ethylene, Marun's olefin plant is amongst the world's few mega-olefins that have become operational.

The plant's main production also includes 200,000 ton/year of propylene. Besides, it yields pyrolysis gasoline, heavy C3+, methane and hydrogen as by-products.





GAS CRACKING PLANT (OL)

Basis of Process Design Gas Cracking Plant

This document represents the GAS CRACKING PLANT with an annual capacity of.

1,100,000 tons of polymer grade ethylene

And

200,000 tons of polymer grade propylene

GAS CRACKING PLANT (OL)

Products	Ton/year
Polymer grade Ethylene	1.100.000
Polymer grade Propylene	200.000
Hydrogen	1.200
Methane	1.600
Tail gas (fuel and Export)	323.000
Gasoline	83.000
Heavys	356
C4	168.000



GAS CRACKING PLANT (OL)

C2 ⁺ -Feed		
Ethane	52.97	% wt
Methane	0.3	% wt
Nitrogen	Trace	% wt
Propane	29.2	
i-Butane	4.22	% wt
n-Butane	7.92	% wt
i-Pentane	1.71	% wt
n-Pentane	1.27	% wt
Hexan	0.43	% wt
CO ₂	1.97	% wt
COS	25	ppm wt
H ₂ S	15	ppm wt



GAS CRACKING PLANT (OL)

Ethylene Product

Component	Value	Unit
Ethylene	99.95%	V min
Methane+Ethane	500 ppm	V max
Hydrogen	5 ppm	V max
Total C3 & Higher	10 ppm	V max
Acetylene	1 ppm	V max
Carbon Monoxide	0.03 ppm	V max
Carbon Dioxide	0.5 ppm	V max
Oxygen	0.1 ppm	V max
Total combined sulphur	1 ppm	V max
Water	0.1 ppm	V max
Methanol	0.5 ppm	V max
Total combined nitrogen	0.2 ppm	V max
Oxygenated compounds	0.5 ppm	V max
COS	0.02 ppm	V max
Mercaptans	0.3 ppm	V max



GAS CRACKING PLANT (OL)

Propylene Product		
Component	Value	Unit
Propylene	99.80%	V min
Propane and heavier	Balance	V max
Methane	10 ppm	V max
Ethane	200 ppm	V max
Hydrogen	5 ppm	V max
Ethylene	5 ppm	V max
Acetylene	1 ppm	V max
C4HC	1 ppm	V max
Methyl acetylene	1 ppm	V max
Propadiene	1 ppm	V max
Carbon Monoxide	0.02 ppm	V max
Carbon Dioxide	2 ppm	V max
Oxygen	2 ppm	V max
Total sulphur	2 ppm	V max
Water	5 ppm	V max
Methanol+Ketones	5 ppm	V max



GAS CRACKING PLANT (OL)

Hydrogen Product

Component	Value	Unit
Hydrogen	99.99 %	V min
CO+CO2	1 ppm	V max
CH4+N2	0.01 %	V max
C2H4	1 ppm	V max

Methane Product

Component	Value	Unit
Hydrogen	Max.7.0	Mol-%
Ethane	Max.1000	Mol-ppm
Methane	Min.93.0	Mol-%
CO	Max. 1000	Mol-ppm
Acetylene	Max.1	Mol-ppm
Sulfur	Max.5	Mol-ppm
C3+	nil	
Cl	nil	



GAS CRACKING PLANT (OL)

C4 plus Product

Component	Value	Unit
M-Mercaptane	51	Wt-ppm
Ethane	131	Wt-ppm
Propane	18.0	Wt-%
i-Butane	17.82	Wt-%
n-Butane	41.72	Wt-%
Pentane	19.43	Wt-%
Hexane	0.03	Wt-%

C5 plus Product

Component	Value	Unit
C4 minus components	Mx 350	Wt-ppm
Benzene content	49.24	Wt-%
Toluene	14.68	Wt-%
Xylene	1.47	Wt-%
C5	6.02	Wt-%
C6-C8 non Aromatics	4.85	Wt-%
C7/C8 Aromatics	4.13	Wt-%
C9+components	19.60	Wt-%
Diene No.	5-10%	Wt

DPG (PYROLYSIS GASOLINE)

PROPERTY	UNIT	METHOD	RESULT
DENSITY AT 15.6 °C	GR/CM3	D-4052	0.85-0.9
R.V.P	PSIA	D-323	3.0-6.0
COLOUR SAYBOLT	---	D-156	DARK BROWN
TOTAL SULPHUR	PPM	D-3120	700 MAX
LEAD CONTENT	PPB	A.A.	NILL
IBP	°C	D-86	45 MIN
5 PCT VOL RECOVERED	°C	D-86	55 MIN
95 PCT VOL RECOVERED	°C	D-86	260 MAX
FBP	°C	D-86	230 MAX
PARAFFINS	WT%	G.C	TBR
OLEFINS	WT%	G.C	MAX 15
NAPHTHENES	WT%	G.C	TBR
AROMATICS	WT%	G.C	60 MIN
OTHERS	WT%	G.C	20 MAX
BENZEN CONTENT	WT%	G.C	38 MIN
GUM CONTENT	Mg/100MI	D 381	1500 MAX
DOCTOR TEST	-----	-----	NEGATIVE
COPPER CORROSION	-----	D 849	NO 1A