5 Feedstock, Auxiliary Material and Fuel Supply

5.1 Feedstock Supply

(1) Feedstock Specifications, Demands and Sources

Feedstock for MOIN Refinery Revamp Project is shown in Table 6.1-1.

Table5.1-1 Specifications and Demands for Main Feedstock

S/N	Description	Demand, kt/a	Source
1	Pennuington Crude	950	Imported from Nigeria
2	Vasconia Crude	2,010	Imported from Colombia
3	Ethanol	70	Local market(Costa Rica)

(2) Crude Supply

As no crude output is available in Costa Rica, all crude required for MOIN Refinery shall be imported. Pennington crude from Nigeria and Vasconia crude from Colombia are sourced as feedstocks for this project depending on the diversity and availability of crude.

Crude is transferred from MOIN Jetty next to MOIN Refinery to the Refinery via crude delivery pipeline in a distance of 3km.

5.2 Auxiliary Material Supply

Auxiliary materials required for MOIN Refinery Revamp Project mainly include catalysts and chemicals. For categories and demands of main auxiliary materials, please refer to the following table.

Table5.2-1 List of Auxiliary Material Supplies

Process Unit	Description	Annual Consumption, t	One-go Loading, t
Atmospheric and Vacuum Distillation Unit	Demulsifier	42	
	Corrosion Inhibitor	16.8	
Naphtha Hydrotreating Unit (NHT)	Naphtha Hydrotreating Catalyst	Replaced every 6 years	20t
	Ceramic Balls	Replaced every 3 years	3t
	Corrosion Inhibitor	1t	
	DMDS	3t	Served for sulfiding
Continuous Catalytic Reforming Unit (CCR)	Reforming Catalyst	Replaced every 4 years	33.6
	Ceramic Balls	Replaced every 4 years	36
	Reformer H_2 Dechlorinating Agent	Replaced every year	56
	Reformate Dechlorinating Agent	Replaced every year	45.5

Process Unit	Description	Annual Consumption, t	One-go Loading, t
	Sulfide	1	
	Chloride	10	
	Propane	Replaced every year	6
Hydrocracking Unit (HC)	Hydrofining Catalyst	Replaced every 6 years	140
	Hydrocracking Catalyst	Replaced every 6 years	110
	Co-catalyst	Replaced every 3 years	13.6
	Amine	Replaced every 3 years	6.6t
	Sulfiding Agent	Replaced every 3 years	42.8t
	Corrosion Inhibitor	38	
	Scale Inhibitor	60	
	Polysulfide	52	
	Trisodium Phosphate (TSP)	0.7	
	Ceramic Balls	Replaced every 3 years	65t
H_2 Production Unit	Conversion Catalyst Z418	Replaced every 3 years	15.7t
	Hydrogenation Catalyst T201	Replaced every 3 years	4.9t
	ZnO Desulfurizing Agent T305	Replaced every year	31.9t
	Shift Catalyst B113-2	Replaced every 3 years	34.6t
	Trisodium Phosphate (TSP)		28.5kg/week
	Ammonia Solution (20wt%)		30kg/week
	High Aluminum Ceramic Balls (φ38mm)	Replaced every 3 years	6.0t
	High Aluminum Ceramic Balls (φ13mm)	Replaced every 3 years	1.3t
	Common Ceramic Balls (φ38mm)	Replaced every 3 years	1.86t
	Common Ceramic Balls (φ13mm)	Replaced every 3 years	0.72t
Diesel Hydrofining Unit (DHF)	Hydrofining Catalyst	Replaced every 6 years	97.2
	Co-catalyst	Replaced every 3 years	9.71
	Amine		
	Sulfiding Agent	Replaced every 3 years	20t
	Corrosion Inhibitor	15	
	Scale inhibitor		
	Polysulfide		
	Trisodium phosphate (TSP)		
	Ceramic Balls	Replaced every 3 years	20
Sulfur Recovery Unit	Sweetening Agent DSC-05	10	
	30% NaOH Solution	45	
	Antifoamer		0.15

Process Unit	Description	Annual Consumption, t	One-go Loading, t
	30% MDEA Solution	Replaced every 2 years	120
	Sulfur Recovery Catalyst	Replaced every 3 years	28
	Leaked Oxygen Removal Co-Catalyst	Replaced every 3 years	6
	Tail Gas Hydrogenation Catalyst	Replaced every 3 years	14
Isomerization Unit	Isomerization Catalyst	It shall have a total service life of 10 years, for which regeneration is required for every 2 years.	5.6
	Inert Ceramic Balls	Replaced every 2 years	2.8
Dry Gas/LPG Scrubbing Unit	Sweetening Catalyst	100kg	10kg
	20% NaOH Solution	21.5	17.5
	30% Composite MDEA Solution (wt%)		18

5.3 Fuel Supply

Fuels required for this project mainly include the fuel gas and fuel oil produced by the refinery, for fuel consumption; please refer to the following table.

Table5.3-1 Summary of Plant-wide Fuel Consumptions

S/N	Description	Unit	Consumption
1	Fuel for process	kt/a	59.44
2	Fuel for boiler	kt/a	20.16
			79.60