

EASTERN REFINERY LIMITED
QUALITY CONTROL DEPARTMENT
NORTH PATENGA, CHATTOGRAM.

Test Procedure & Test Fees

EASTERN REFINERY LIMITED
QUALITY CONTROL DEPARTMENT
NORTH PATENGA, CHATTOGRAM.

Testing Procedure:

1. **Request Letter - (03 Copies) to Managing Director, ERL.**
2. **Pay Order In Favor Of “Eastern Refinery Limited” With Photocopy.**
3. **Sample Quantity: Two Liter For Full Test Otherwise As Per Instruction Of ERL.**

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LIQUIFIED PETROLEUM GAS (LPG)					
Sl.	Test Parameters	Method	Testing Fees, Tk.	15% VAT, Tk.	Testing Fees with 15% VAT, Tk.
1	Composition, % mol	ASTM D 2163	-	-	Note*
2	Vapour Pressure at 37.8 °C, psi guage	ASTM D 1267	5,000.00	750.00	5,750.00
3	Volatility : Evaporation temperature For 95% vol., °C (°F)	ASTM D 1837	10,000.00	1,500.00	11,500.00
4	Oil Stain Observation	ASTM D 2158	-	-	Note*
5	Relative Density at 15.6/15.6 °C	ASTM D 1657	4,000.00	600.00	4,600.00
6	Copper Strip Corrosion (1 hour at 37.8 °C)	ASTM D 1838	5,000.00	750.00	5,750.00
7	Hydrogen Sulphide	UOP 212	7,500.00	1,125.00	8,625.00
8	Moisture Content	ASTM D 2713	-	-	Note*

Note*: Test facility is not available at ERL Laboratory at present.

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SPECIAL BOILING POINT SOLVENT (SBP)					
Sl.	Test Parameters	Method	Testing Fees, Tk.	15% VAT, Tk.	Testing Fees with 15% VAT, Tk.
1	Appearance	Visual	2,000.00	300.00	2,300.00
2	Density at 15 °C, kg/L	ASTM D 4052	3,400.00	510.00	3,910.00
3	Colour, Saybolt	ASTM D 156	3,000.00	450.00	3,450.00
4	Doctor Test	ASTM D 4952	2,500.00	375.00	2,875.00
5	Copper Strip Corrosion (3 hours at 50 °C)	ASTM D 130	3,500.00	525.00	4,025.00
6	Aromatic content,% vol.	ASTM D 6730	35,000.00	5,250.00	40,250.00
7	Sulphur content, % mass.	ASTM D 4294	10,000.00	1,500.00	11,500.00
8	Distillation	ASTM D 86	5,000.00	750.00	5,750.00
9	Unwashed Gum Content, mg/100ml	ASTM D 381	11,000.00	1,650.00	12,650.00
10	Water Content, ppm	ASTM D 6304	8,000.00	1,200.00	9,200.00

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NAPHTHA					
Sl.	Test Parameters	Method	Testing Fees, Tk.	15% VAT, Tk.	Testing Fees with 15% VAT, Tk.
1	Density at 15 °C, kg/L	ASTM D 4052	3,400.00	5,10.00	3,910.00
2	Reid Vapour Pressure at 37.8 °C, psi	ASTM D 323	5,000.00	750.00	5,750.00
3	Colour, Saybolt	ASTM D 156	3,000.00	450.00	3,450.00
4	Doctor Test	ASTM D 4952	2,500.00	375.00	2,875.00
5	Sulphur content, % mass.	ASTM D 4294	10,000.00	1,500.00	11,500.00
6	Distillation	ASTM D 86	5,000.00	750.00	5,750.00
7	Paraffin content, % vol.	ASTM D 6730	35,000.00	5,250.00	40,250.00
8	Olefin content, % vol.	ASTM D 6730			
9	Aromatic content, % vol.	ASTM D 6730			
10	Naphthene content, % vol.	ASTM D 6730			
11	Lead content, g/L	ASTM D 5059	10,000.00	1,500.00	11,500.00

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MOTOR GASOLINE – REGULAR/ PREMIUM					
Sl.	Test Parameters	Method	Testing Fees, Tk.	15% VAT, Tk.	Testing Fees with 15% VAT, Tk.
1	Density at 15 °C, kg/L	ASTM D 4052	3,400.00	5,10.00	3,910.00
2	Colour, visual	-----	2,000.00	300.00	2,300.00
3	Copper Strip Corrosion (3 hours at 50 °C)	ASTM D 130	3,500.00	525.00	4,025.00
4	Distillation	ASTM D 86	5,000.00	750.00	5,750.00
5	Octane Number, Research Method	ASTM D 2699	20,000.00	3,000.00	23,000.00
6	Oxidation Stability, minutes	ASTM D 525	15,000.00	2,250.00	17,250.00
7	Existent Gum (Residue on evaporation), mg/100mL	ASTM D 381	11,000.00	1,650.00	12,650.00
8	Sulphur total, % mass	ASTM D 4294	10,000.00	1,500.00	11,500.00
9	Lead content (as Pb), g/L	ASTM D 5059	10,000.00	1,500.00	11,500.00
10	Reid Vapour Pressure at 38 °C, psi	ASTM D 323	5,000.00	750.00	5,750.00
11	Doctor Test	ASTM D 4952	2,500.00	375.00	2,875.00

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MINERAL TURPENTINE (MTT)					
Sl.	Test Parameters	Method	Testing Fees, Tk.	15% VAT, Tk.	Testing Fees with 15% VAT, Tk.
1	Appearance at ambient Temperature	Visual	2,000.00	300.00	2,300.00
2	Undissolved Water	ASTM D 6304	8,000.00	1,200.00	9,200.00
3	Density at 15 °C, kg/L	ASTM D 4052	3,400.00	510.00	3,910.00
4	Colour, Saybolt	ASTM D 156	3,000.00	450.00	3,450.00
5	Flash Point (Able), °F	IP 170	4,500.00	675.00	5,175.00
6	Doctor Test	ASTM D 4952	2,500.00	375.00	2,875.00
7	Copper Strip Corrosion (3 hours at 100 °C)	ASTM D 130	3,500.00	525.00	4,025.00
8	Aromatic content, % vol.	ASTM D 6730	35,000.00	5,250.00	40,250.00
9	Existent Gum, mg/100mL	ASTM D 381	11,000.00	1,650.00	12,650.00
10	Distillation	ASTM D 86	5,000.00	750.00	5,750.00

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KEROSENE					
Sl.	Test Parameters	Method	Testing Fees, Tk.	15% VAT, Tk.	Testing Fees with 15% VAT, Tk.
1	Appearance	Visual	2,000.00	300.00	2,300.00
2	Density at 15 °C, kg/L	ASTM D 4052	3,400.00	5,10.00	3,910.00
3	Colour, Saybolt	ASTM D 156	3,000.00	450.00	3,450.00
4	Char value, mg/kg	IP 10	8,000.00	1,200.00	9,200.00
5	Flash Point (Able), °C	IP 170	4,500.00	675.00	5,175.00
6	Smoke Point, mm	ASTM D 1322	4,000.00	600.00	4,600.00
7	Copper Strip Corrosion (2 hrs at 100 °C)	ASTM D 130	3,500.00	525.00	4,025.00
8	Distillation	ASTM D 86	5,000.00	750.00	5,750.00
9	Sulphur, total, % mass	ASTM D 4294	10,000.00	1,500.00	11,500.00

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JET-A1 (AVIATION FUEL)					
Sl.	Test Parameters	Method	Testing Fees, Tk.	15% VAT, Tk.	Testing Fees with 15% VAT, Tk.
1	Appearance	Visual	2,000.00	300.00	2,300.00
	Colour	ASTM D 156/D6045	3,000.00	450.00	3,450.00
	Particulate contamination, mg/L	ASTM D 5452/IP423	11,5000.00	1,725.00	13,225.00
	Particulate, at point of manufacture Cumulative channel particle counts	IP 564 / IP 565	-	-	Note*
2	COMPOSITION :				
	Total Acidity, mg KOH/gm	ASTM D 3242	3,800.00	570.00	4,370.00
	Aromatics, % vol.	ASTM D 1319	11,500.00	1,725.00	13,225.00
	Or Total Aromatics, % vol	ASTM D 1319			
	Sulphur_total, % mass	ASTM D 4294	10,000.00	1,500.0	11,500.00
	Sulphur_mercaptan, % mass Or Doctor Test	ASTM D 3227	10,000.00	1,500.0	11,500.00
		ASTM D 4952	2,500.00	375.00	2,875.00
3	VOLATILITY :				
	Distillation	ASTM D 86	5,000.00	750.00	5,750.00
	Flash Point (Abel), °C	IP 170	4,500.00	675.00	5,175.00
	Density at 15 °C, kg/m ³	ASTM D 4052	3,400.00	510.00	3,910.00
4	FLUIDITY :				
	Freezing Point, °C	ASTM D 2386	8,000.00	1,200.00	9,200.00
	Viscosity at -20 °C, cSt (mm ² /sec)	ASTM D 445	5,500.00	825.00	6,325.00
5	COMBUSTION :				
	Specific Energy, net MJ/kg (Calculation)	ASTM D 3338	2,000.00	300.00	2,300.00
	Smoke Point, mm Or	ASTM D 1322	4,000.00	600.00	4,600.00
	Smoke Point, mm And Naphthalene's, % vol.	ASTM D 1322 ASTM D 1840			
6	CORROSION :				
	Corrosion, Copper Strip, (2 hours ± 5 min, at 100 °C ± 1°C)	ASTM D 130	3,500.00	525.00	4,025.00

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7	STABILITY : Thermal Stability (JFTOT) Control temperature, °C Filter Press. Differential, mm Hg Tube Deposit Rating (ETR)	ASTM D 3241			Note*
8	CONTAMINANTS : Existent Gum. mg/100mL Micro-separometer (MESEP) Rating :Fuel with/without Static Dissipator Additive	ASTM D 381 ASTM D 3948	11,000.00 20,000.00	1,650.00 3,000.00	12,650.00 23,000.00
9	CONDUCTIVITY : Electrical Conductivity, pS/m	ASTM D 2624	3,500.00	525.00	4,025.00
10	LUBRICITY : BOCLE wear scar diameter, mm Max.	ASTM D 5001	-	-	Note*

Note*: Test facility is not available at ERL Laboratory at present.

Only Specific Energy, net MJ/kg	ASTM D 3338	26,900.00	4,035.00	30,935.00
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HIGH SPEED DIESEL (HSD)					
Sl.	Test Parameters	Method	Testing Fees, Tk.	15% VAT, Tk.	Testing Fees with 15% VAT, Tk.
1	Density at 15 °C, kg/L	ASTM D 4052	3,400.00	5,10.00	3,910.00
2	Colour, ASTM	ASTM D 1500	3,000.00	450.00	3,450.00
3	Acidity, Strong/ Inorganic. mgKOH/g Total Acid No. mg KOH/g	ASTM D 664/ ASTM D 974	5,500.00	825.00	6,325.00
4	Ash Content, % wt.	ASTM D 482	3,500.00	525.00	4,025.00
5	Carbon Residue (Conradson) On 10% bottom, % mass.	ASTM D 189	8,500.00	1,275.00	9,775.00
6	Cetane Number	ASTM D 613	-	-	Note*
7	Cetane Index (Calculated) Note**	ASTM D 4737	2,000.00	300.00	2,300.00
8	Pour Point, °C	ASTM D 97	5,500.00	825.00	6,325.00
9	Copper Strip Corrosion (3 hrs at 500 °C)	ASTM D 130	3,500.00	525.00	4,025.00
10	Distillation	ASTM D 86	5,000.00	750.00	5,750.00
11	Flash Point PM (CC)/Abel, °C	ASTM D 93/IP 170	4,500.00	675.00	5,175.00
12	Kinematic Viscosity at 40 °C, cSt	ASTM D 445	5,000.00	750.00	5,750.00
13	Sediment, % mass	ASTM D 473	4,500.00	675.00	5,175.00
14	Sulphur Content, % mass	ASTM D 4294	10,000.00	1,500.00	11,500.00
15	Water Content, % vol.	ASTM D 95	4,000.00	600.00	4,600.00
16	Oxidation Stability, g/M ³ , Max	ASTM D 2274	15,000.00	2,250.00	17,250.00

Note 01*: Test facility is not available at ERL Laboratory at present.

Note 02**: For the calculation of Cetane Index (CI), test & fees mentioned in Table 01 should be included.

Table 01

Density at 15 °C, kg/L	ASTM D 4052	3,400.00	510.00	3,910.00
Distillation	ASTM D 86	5,000.00	750.00	5,750.00
Calculation	ASTM D 4737	2,000.00	300.00	2,300.00
Total Fee for only Cetane Index (CI) test including relevant parameters		10,400.00	1,560.00	11,960.00

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JUTE BATCHING OIL (JBO)					
Sl.	Test Parameters	Method	Testing Fees, Tk.	15% VAT, Tk.	Testing Fees with 15% VAT, Tk.
1	Colour, ASTM	ASTM D 1500	3,000.00	450.00	3,450.00
2	Flash Point PMCC, °C	ASTM D 93	4,000.00	600.00	4,600.00
3	Density at 15 °C, kg/L	ASTM D 4052	3,400.00	5,10.00	3,910.00
4	Kinematic Viscosity at 37.8 °C, cSt	ASTM D 445	5,000.00	750.00	5,750.00
5	Pour Point, °C	ASTM D 97	5,500.00	825.00	6,325.00
6	Emulsification test	BDS 1448	-	-	Note
7	Distillation	ASTM D 86	5,000.00	750.00	5,750.00
8	UV Absorbance test a) Pyrene Content, ppm b) Absorbance per cm in the range of wavelength, µm i) 280 – 299 ii) 300 – 319 iii) 320 – 359 iv) 360 - 400	USF & DA 178.3620	-	-	Note*

Note*: Test facility is not available at ERL Laboratory at present.

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LIGHT DIESEL OIL (LDO)					
Sl.	Test Parameters	Method	Testing Fees, Tk.	15% VAT, Tk.	Testing Fees with 15% VAT, Tk.
1	Density at 15 °C, kg/L	ASTM D 4052	3,400.00	5,10.00	3,910.00
2	Neutralization Value Strong Acid No. mg KOH/g Total Acid No. mg KOH/g	ASTM D 664	5,500.00	825.00	6,325.00
3	Ash Content, % mass	ASTM D 482	3,500.00	525.00	4,025.00
4	Carbon Residue (Conradson), % mass	ASTM D 189	4,500.00	1,275.00	9,775.00
5	Pour Point, °C	ASTM D 97	5,500.00	825.00	6,325.00
6	Flash Point PM (CC), °C	ASTM D 93	4,000.00	600.00	4,600.00
7	Kinematic Viscosity at 38 °C, cSt	ASTM D 445	5,000.00	750.00	5,750.00
8	Sediment, % mass	ASTM D 473	4,500.00	675.00	5,175.00
9	Sulphur Content, % mass	ASTM D 4294	10,000.00	1,500.00	11,500.00
10	Water Content, % vol.	ASTM D 95	4,000.00	600.00	4,600.00

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FURNACE OIL (FO)					
Sl.	Test Parameters	Method	Testing Fees, Tk.	15% VAT, Tk.	Testing Fees with 15% VAT, Tk.
1	Density at 15 °C, kg/L	ASTM D 4052	3,400.00	510.00	3,910.00
2	Water Content, % vol.	ASTM D 95	4,000.00	600.00	4,600.00
3	Sulphur Content, % mass.	ASTM D 4249	10,000.00	1,500.00	11,500.00
4	Ash Content, % mass.	ASTM D 482	3,500.00	525.00	4,025.00
5	Kinematic Viscosity at 50 °C, cSt	ASTM D 445	5,000.00	750.00	5,750.00
6	Flash Point PM (CC), °C	ASTM D 93	4,000.00	600.00	4,600.00
7	Sediment, % mass	ASTM D 473	4,500.00	675.00	5,175.00
8	Pour Point, °C	ASTM D 97	5,500.00	825.00	6,325.00
9	Carbon Residue (Conradson), % mass.	ASTM D 189	8,500.00	1,275.00	9,775.00
10	Calorific Value, Gross, Kcal/kg	ASTM D240/ ASTM D 4809	15,000.00	2,250.00	17,250.00
11	Acidity, Inorganic, mgKOH/g	ASTM D 664	5,500.00	825.00	6,325.00
12	Higher Heating Value(HHV),kj/kg	ASTM D 240	17,900.00	2,685.00	20,585.00
13	Lower Heating Value (LHV),kj/kg (Only for Calculation) Note*	ASTM D 4868	2,000.00	300.00	2,300.00

Note*: For the calculation of Lower Heating Value (LHV) test & fees mentioned in Table 01 should be included.

Table 01

Density at 15 °C, kg/L	ASTM D 4052	3,400.00	510.00	3,910.00
Water Content, % vol.	ASTM D 95	4,000.00	600.00	4,600.00
Sulphur Content, % mass.	ASTM D 1552	11,000.00	1,500.00	11,500.00
Ash Content, % mass.	ASTM D 482	3,500.00	525.00	4,025.00
Calculation	ASTM D4868	2,000.00	300.00	2,300.00
Total Fee for only LHV test including relevant parameters		22,900.00	3,435.00	26,335.00

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BITUMEN (GRADE: 80-100 & 60-70)					
Sl.	Test Parameters	Method	Testing Fees, Tk.	15% VAT, Tk.	Testing Fees with 15% VAT, Tk.
1	Sp. Gr. @ 25 °C/25 °C	ASTM D 70	4,000.00	600.00	4,600.00
2	Penetration at 25 °C (100 g, 5 sec.) 0.1 mm	ASTM D 5	5,500.00	825.00	6,325.00
3	Softening Point, °C (Ring & Ball)	ASTM D 36	4,500.00	675.00	5,175.00
4	Ductility at 25 °C (5 cm/min), cm	ASTM D 113	6,000.00	900.00	6,900.00
5	Flash Point (open cup), °C	ASTM D 92	4,000.00	600.00	4,600.00
6	Loss on Heating, % mass. (at 163 °C, 5 hours)	ASTM D 6	4,000.00	600.00	4,600.00
7	Solubility in Trichloroethylene, %mass. Or Bitumen content, % mass.	ASTM D 2042 ASTM D 4	4,000.00	600.00	4,600.00
8	Drop in Penetration after Heating	ASTM D 5 & 6	5,500.00	825.00	6,325.00

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LUBE OIL					
Sl.	Test Parameters	Method	Testing Fees, Tk.	15% VAT, Tk.	Testing Fees with 15% VAT, Tk.
1	Acid Number	ASTM D 664	5,500.00	825.00	6,325.00
2	Aniline Point	ASTM D 611	4,000.00	600.00	4,600.00
3	Appearance	Visual	2,000.00	300.00	2,300.00
4	ASTM Color	ASTM D 1500	3,000.00	450.00	3,450.00
5	Ash from Petroleum Product	ASTM D 482	3,500.00	525.00	4,025.00
6	Ash (Sulphated) from Lubricating Oils and Additives	ASTM D 874	4,500.00	675.00	5,175.00
7	Base Number	ASTM D 2896	10,000.00	1,500.00	11,500.00
8	Carbon Residue (Conradson)	ASTM D 189	8,500.00	1,275.00	9,775.00
9	Cloud Point of Petroleum Oils	ASTM D 2500	4,000.00	600.00	4,600.00
10	Copper Corrosion	ASTM D 130	3,500.00	525.00	4,025.00
11	Color Stability of Petroleum Distillates	UOP 793	8,000.00	1,200.00	9,200.00
12	Density / Specific Gravity	ASTM D 4052	3,400.00	510.00	3,910.00
13	Flash and Fire Point by Cleveland Open Cup Tester	ASTM D 92	4,000.00	600.00	4,600.00
14	Flash Point by Pensky-Marten Close Cup Tester	ASTM D 93	4,000.00	600.00	4,600.00
15	Pour Point	ASTM D 97	5,500.00	825.00	6,325.00
16	Refractive Index	ASTM D 1218	3,000.00	450.00	3,450.00
17	Sulphur Content, % mass.	ASTM D 4294	10,000.00	1,500.00	11,500.00
18	Viscosity (Kinematic) @ Specified Temperature	ASTM D 445	5,000.00	750.00	5,750.00
19	Viscosity Index(If K. Vis @ 40 °C & 100 °C test included as requirement)	ASTM D 2270	2,000.00	300.00	2,300.00
	Viscosity Index(If K. Vis @ 40 °C & 100 °C test not included as requirement)		7,000.00	1,500.00	8,050.00

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20	Water (Dean & Stark)	ASTM D 95	4,000.00	600.00	4,600.00
21	Water & Sediment	ASTM D 1796	4,000.00	600.00	4,600.00
22	Water by Karl Fischer Reagent (Auto Titration)	ASTM D 6304	8,000.00	1,200.00	9,200.00

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OTHER TEST FACILITIES:

Sl.	Test Parameters	Method	Testing Fees Tk.	15% VAT, Tk.	Testing Fees with 15% VAT, Tk.
01	Caustic Solution Analysis (double indicator method) of Merox Sweetening :- 1) Percent spent 2) Strong base alkalinity 3) Total alkalinity	UOP 210	3,000.00 2,000.00 2,000.00	450.00 300.00 300.00	3,450.00 2,300.00 2,300.00
02	TBP (True Boiling Point) Distillation of Crude Petroleum	ASTM D 2892	1,00,000.00	15,000.00	1,15,000.00
03	Water by Karl Fischer Reagent (Auto Titration)	ASTM D 6304	8,000.00	1,200.00	9,200.00
04	Flue gas analysis (by Orsat app.) i) O ₂ , % vol. ii) CO, % vol. iii) CO ₂ , % vol.	UOP 170	6,000.00	900.00	6,900.00
05	Refractive Index	ASTM D 1218	3,000.00	450.00	3,450.00
06	Salt content in Crude Oil (Electrometric method)	ASTM D 3230	4,500.00	675.00	5,175.00
07	Specific Gravity of gas by Schilling Effusion method	UOP 114	2,000.00	300.00	2,300.00
08	Distillation of Petroleum Products at Reduced Pressure	ASTM D 1160	30,000.00	4,500.00	34,500.00
09	Water in Crude Oil by Distillation	ASTM D4006	4,000.00	600.00	4,600.00
10	Water & Sediment in Crude Oil by Centrifuge	ASTM D 4007	4,000.00	600.00	4,600.00
11	Specific Gravity of gas by Schilling Effusion method	UOP 114	2,000.00	300.00	2,300.00
12	Knock Characteristics of Motor & Aviation Fuels by Motor method	ASTM D 2700	25,000.00	3,750.00	28,750.00