

ANNEX I – Specifications for HSFO 180 CC

Fuel Oil 180 CST Catalytic Cracked product (HSFO 180 CC)

S.N.	CHARACTERISTICS	UNITS	REQUIREMENT	LIMIT	TEST METHODS
1	Density @ 15 °C	g/mL	0.9901	Max	ASTM D 4052-22 or ISO 12185:2024
2	Kinematic Viscosity	cSt @50°C	150.0 - 172.1	Min 150.0 – Max 172.1	ASTM D 445-24 or ISO 3104:2020 (1996)
3	Sulphur	% wt (Total)	3.50	Max	ASTM D 4294-21
4	Pour Point	°C	+15	Max	ASTM D 97-17b (2022) ISO 3016:2019
5	Flash Point (PMC)	°C	64.0	Min	ASTM D 93-20 or ISO 2719:2016 (2021)
6	Water content	% vol	0.38	Max	ASTM D 95-23 or ISO 3733:1999 (2003)
7	Micro Carbon Residue	% wt	14.1	Max	ASTM D 4530-15 (2020) or ISO 10370:2014 [E]
8	Ash	% wt	0.08	Max	ASTM D 482-19 ISO 6245:2001
9	Vanadium	mg/kg	194	Max	IP 470-05 IP 501-05
10	Aluminium+Silicon	mg/kg	56	Max	IP 470-05 IP 501-05 or ASTM D5184-12(2017)
11	Total Sediment, accelerated	% wt	0.08	Max	ASTM D4870-22 or ISO 10307-2:2009 Cor. 1: 2010
12	Total sediment, existent	% wt	0.08	Max	ASTM D4870-22 or ISO 10307-1:2009
13	Total sediment, differential	% wt	0.05	Max	Calculation
14	Strong acid No.	mg of KOH/g	NIL		ASTM D 664-18 ^{E2}
15	Total acid No.	mg of KOH/g	2.5	Max	ASTM D 664-18 ^{E2}
16	Zinc	mg/kg	12.0	Max	IP 501-05
17	Phosphorous	mg/kg	12.0	Max	IP 501-05
18	Calcium	mg/kg	26.0	Max	IP 501-05
19	CCAI		859	Max	Calculation
20	H2S(liquid phase)	mg/kg	2.0	Max	IP 570/22

Note: The latest version of test methods mentioned above may be used, subject to STC's acceptance on same.

ANNEX II – Specifications for HSFO 180 SR

Fuel Oil 180 CST Straight-Run Product (HSFO 180 SR)

S.N.	CHARACTERISTICS	UNITS	REQUIREMENT	LIMIT	TEST METHODS
1	Ash	% wt	0.05	Max	ASTM D 482:2025
2	Gross calorific value	MJ/kg	42.00	Min	ASTM D 4868:2025
3	Net calorific value	MJ/kg	40.00	Min	ASTM D 4868:2025
4	Micro Carbon Residue	% wt	15.0	Max	ASTM D 4530:2025 ISO 10370:2014
5	Flash Point (PMC)	°C	60.0	Min	ASTM D 93-2025 ISO 2719:2016 (2021)
6	Pour Point	°C	+15	Max	ASTM D 97-2017b (2022)
7	Density @ 15 °C	g/mL	0.9400 - 0.9900	Min 0.9400 – Max 0.9900	ASTM D 4052-2022 ISO 12185:2024
8	Sodium	mg/kg	50	Max	IP 470:2005 IP 501:2005
9	Sulphur	% wt (Total)	1.00 - 3.00	Min 1.00 – Max 3.00	ASTM D 4294:2024
10	Vanadium	mg/kg	100	Max	IP 470:2005 IP 501:2005
11	Kinematic Viscosity	cSt @ 50°C	140.0 – 180.0	Min 140.0 – Max 180.0	ASTM D 445:2024
12	Water content	% vol	0.50	Max	ASTM D 95-2023e-1 ISO 3733:1999
13	Aluminium+Silicon	mg/kg	30	Max	IP 470:2005 IP 501:2005 ASTM D5184:2022
14	Calculated Carbon Aromaticity Index (CAI)		850	Max	ISO 8217:2024
15	Total Sediment, accelerated	% wt	0.10	Max	ASTM D 4870:2022 ISO 10307-2:2009
16	Asphaltenes	% wt	8.0	Max	ASTM D 3279-19

Note: The latest version of test methods mentioned above may be used, subject to STC's acceptance on same.

ANNEX III – Specifications for HSFO 380 SR

Fuel Oil 380 CST Straight-Run product (HSFO 380 SR)

S.N.	CHARACTERISTICS	UNITS	REQUIREMENT	LIMIT	TEST METHODS
1	Kinematic Viscosity	cSt @50°C	225.0 - 380.0	Min 225.0 – Max 380.0	ASTM D 445-2024
2	Density @ 15 °C	g/mL	0.9400 - 0.9900	Min 0.9400 – Max 0.9900	ASTM D 4052:2022 ISO 12185:2024
3	Ash	% wt	0.10	Max	ASTM D 482:2025
4	Micro Carbon Residue	% wt	18.0	Max	ASTM D 4530-2025 ISO 10370:2014
5	Total Sediment accelerated	% wt	0.10	Max	ASTM D4870:2022 or ISO 10307-2:2009
6	Vanadium	mg/kg	200	Max	IP 470:2005 IP 501:2005 (2019)
7	Sodium	mg/kg	100	Max	IP 470:2005 IP 501:2005 (2019)
8	Sulphur	% wt (Total)	1.00 - 3.00	Min 1.00 – Max 3.00	ASTM D 4294:2024
9	Water content	% Vol	0.5	Max	ASTM D 95:2023e-1
10	Flash Point (PMC)	°C	66.0	Min	ASTM D 93:2025
11	Pour Point °C	°C	+20	Max	ASTM D97:2017b (2022)
12	Asphaltenes	% wt	14.0	Max	ASTM D 3279:2019
13	Gross calorific value	MJ/kg	42.00	Min	ASTM D 4868:2025
14	Net calorific value	MJ/kg	40.00	Min	ASTM D 4868:2025
15	Calculated Carbon Aromaticity Index (CCAI)		850	Max	ISO 8217:2024
16	Aluminium+Silicon	mg/kg	30	Max	IP 470:2005 IP 501:2005 (2019) ASTM D5184:2022

Note: The latest version of test methods mentioned above may be used, subject to STC's acceptance on same.