

CRUDE OIL ASSAY REPORT

"CARGO SAMPLE B 80 OIL FIELD Dated 27-04-25"

CRUDE OIL ASSAY REPORT NUMBER : MUM/2655/25

DATE OF ISSUE : 12-07-25



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Client Contact: Mr. Krishnan Raghavan

Intertek Reference: MUM/2655/25

Date Received: 21/06/2025

Date Completed: 12/07/2025

Subject: Assay Project

Job Reference Information

Date: 12/07/2025

Crude Oil Assay Report No: MUM/2655/25

FOR THE ATTENTION OF : Mr. Krishnan Raghavan

SAMPLE DETAILS : CARGO SAMPLE B 80 OIL FIELD Dated 27-04-25

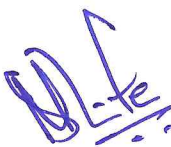
SOURCE : Received from Intertek India

DESCRIPTION : " CARGO SAMPLE B 80 OIL FIELD Dated 27-04-25"

CONTAINERS : 5 X 4 Ltr cans

SEALS : No Seals

For: 
Reported by: Milind Aklujkar
Assistant Laboratory Manager


Approved by: Mangesh Shinde
Laboratory Manager



INTERTEK INDIA Ltd
F wing Tex centre ,
Chandivali Farm road
Andheri (East) Mumbai.



LABORATORY REPORT NO. MUM/2655/25
CRUDE OIL - DETAILED ASSAY ALL CUTS OVERVIEW

CARGO SAMPLE B 80 OIL FIELD Dated 27-04-25

Tests	Methods		Whole Crude	Light Ends	Fractions				
Initial BP		°C		C4	C5	175	300	500	500+
Final BP		°C			175	300	+	500	
Yield	ASTM D 2892 & D5236	% Wt.		2.16	24.78	16.65	56.41	48.29	8.12
		% Vol.		3.12	26.74	16.38	53.76	46.32	7.44
Position on Crude	ASTM D 2892 & D5236	% Wt.		0 - 2.16	2.16 - 26.94	26.94 - 43.59	43.59 - 100	43.59 - 91.88	91.88 - 100
		% Vol.		0 - 3.12	3.12 - 29.86	29.86 - 46.24	46.24 - 100	46.24 - 92.56	92.56 - 100
Density @ 15° C	ASTM D5002/D4052	kg/L	0.8241	0.5645	0.7665	0.8384	0.8645	0.8588	0.9011
Specific Gravity @ 60/60° F	Conversion		0.8245		0.7668	0.8388	0.865	0.8593	0.9016
API Gravity @ 60° F	Calculated	° API	40.1		53.0	37.2	32.1	33.2	25.4
Composition (Up to C5)	GC	% Wt.		See Page 8					
Aromatics									
Monar		% Vol.				16.9			
Di	IP 391	% Vol.				>10 (21.5)			
Tri		% Vol.				0.2			
Poly		% Vol.				>12 (21.7)			
Asphaltene	IP 143	% Wt.	<0.50				<0.50		1.8
Basic Nitrogen	UOP 269	ppm wt				4		72	
Benzene	ASTM D6730	% Wt.			4.74				
Carbon Residue- Micro	ASTM D4530/D189	% Wt.	0.46				0.82		6.5
Organic Chloride	ASTM D4929B	ppm wt	<1		<1				
Composition - Light HC	IP 601	%Wt & %Vol	See Page 13						
Paraffins	ASTM D6730	% Vol.			49.142				
Naphthene		% Vol.			20.29				
Aromatics		% Vol.			30.076				
Flash Point (PMCC)	ASTM D93/D 170	°C	<-5			80.5			
Freezing Point	ASTM D2386	°C				-22.0			
Hydrogen Sulphide (Liquid Phase)	UOP163	ppm wt	<1		<1				
Kinematic Viscosity @ 40°C	ASTM D445	cSt	3.140						
Kinematic Viscosity @ 50°C		cSt	2.803						
Kinematic Viscosity @ 70°C		cSt	2.062				8.106	170.6	1086
Kinematic Viscosity @ 100°C		cSt					3.909	3.189	51.61
Kinematic Viscosity @ 135°C		cSt							18.95
Mercaptan Sulphur	UOP163	ppm wt	<3		<3				
Metals									
Copper	ICPOES	ppm wt	<1				<1	<1	
Iron	ICPOES	ppm wt	5				8	5	
Nickel	ICPOES	ppm wt	<1				<1	<1	
Vanadium	ICPOES	ppm wt	<1				<1	<1	
Motor Octane Number	ASTM D2700	Rating			68				
Penetration	ASTM D5	0.1 mm							90
Pour Point-upper	ASTM D5853A	°C							
Pour Point	ASTM D97	°C	+15				+45	+48	+63
Aniline Point	ASTM D611	°C				+22			
Refractive Index @20°C	ASTM D1218	-				1.47			
Reid Vapour Pressure @37.8°C	ASTM D5191/D323	psi	7.6		1a				
Research Octane Number	ASTM D2699	Rating			68				
Salt Content	ASTM D3230	lb/1000bbls	3.8						
Smoke Point	ASTM D1322	mm				15			
Total Acid Number	ASTM D664	mg KOH/g	0.06						
Total Nitrogen	ASTM D4629/D5762/D3228	ppm wt	160			11		180	
Total Sulphur	ASTM D4294/D5453	% Wt	0.0539		0.0004	0.0145	0.0885	0.0746	0.171
Water Content	ASTM D4006	% Vol	0.1						
Wax Appearance Temperature	DSC	°C	37.0						
Wax Disappearance Temperature	DSC	°C	45.0						
Wax Content	UOP 46*	% Wt	29.5				52.0	51.0	
Mercury	UOP 938	ppb wt	<1						
Distillation	ASTM D86 / D1160	°C			See Below	See Below	See Below		
Initial Boiling Point		°C			46.4	190.6	295.0		
5% recovered		°C			74.4	207.9	336.0		
10% recovered		°C			80.9	212.3	351.0		
20% recovered		°C			89.5	218.9	363.0		
30% recovered		°C			97.4	225.6	377.0		
40% recovered		°C			104.6	233.2	400.0		
50% recovered		°C			112.2	240.4	415.0		
60% recovered		°C			119.9	247.7	428.0		
70% recovered		°C			128.1	254.1	442.0		
80% recovered		°C			137.1	260.8	459.0		
90% recovered		°C			146.6	268.7	491.0		
95% recovered		°C			158.7	274.8	537.0		
Final Boiling Point		°C			167.0	282.5	584.0		
Recovery		Vol %			98.5	98.5			
Residue		Vol %			0.6	1.1			
Loss		Vol %			0.3	0.4			

Note : (*)Withdrawn method

**LABORATORY REPORT NO. MUM/2655/25****WHOLE CRUDE PROPERTIES****Sample Descriptions / Label :**

CARGO SAMPLE B 80 OIL FIELD Dated 27-04-25

Tests	Methods	Units	Results
Density @ 15° C	ASTM D5002	kg/L	0.8241
Specific Gravity @ 60/60° F	Conversion		0.8245
API Gravity @ 60° F	Calculated	° API	40.1
Asphaltene	IP 143	% Wt	<0.50
Carbon Residue- Micro	ASTM D4530	% Wt	0.46
Organic Chloride	ASTM D4929B	ppm wt	<1
Composition (Upto C9)	IP 601	% Wt & %Vol.	See Page 13
Flash Point	IP 170	° C	<-5
Hydrogen Sulphide (Liquid Phase)	UOP163	ppm wt	<1
Kinematic Viscosity @ 40° C	ASTM D445	cSt	3.140
Kinematic Viscosity @ 50° C			2.803
Kinematic Viscosity @ 70° C			2.062
Mercaptan Sulfur	UOP 163	ppm wt	<3
Copper	ICPOES	ppm wt	<1
Iron	ICPOES	ppm wt	5
Nickel	ICPOES	ppm wt	<1
Vanadium	ICPOES	ppm wt	<1
Pour Point	ASTM D97	° C	+15
Reid Vapour Pressure @ 100° F	ASTM D323	psi	7.6
Salt Content	ASTM D3230	PTB	3.80
Total Acid Number	ASTM D664	mg KOH/g	0.06
Total Nitrogen	ASTM D5762	ppm wt	160
Total Sulphur	ASTM D4294	% Wt	0.0539
Water Content	ASTM D4006	% Vol	0.10
Mercury	UOP 938	ppb wt	<1
Wax Appearance Temperature	DSC	°C	37.0
Wax Disappearance Temperature	DSC	°C	45.0
Wax Content	UOP 46*	% Wt	29.5

Note : (*) Withdrawn method



LABORATORY REPORT NO.MUM/2655/25
TRUE BOILING POINT DISTILLATION DATA
(ASTM D 2892 & ASTM D 5236)

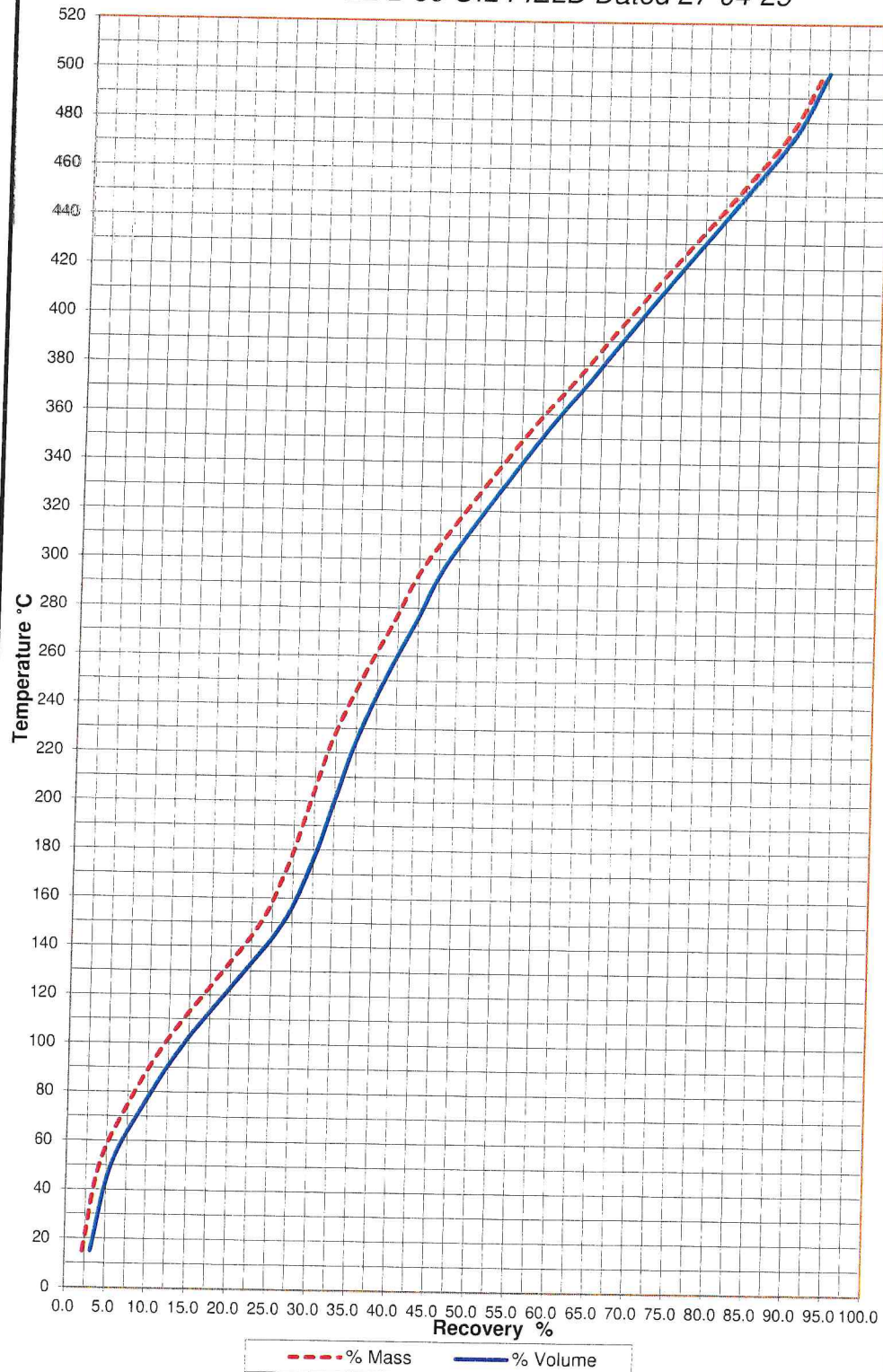
Sample Descriptions / Label : CARGO SAMPLE B 80 OIL FIELD Dated 27-04-25

Sl. No.	Method	Vapour Temperature °C	% Mass	Cumulative % Mass	% Volume	Cumulative % Volume
1	ASTM D2892	Gas	2.16	2.16	3.12	3.12
2		15 - 50	1.87	4.03	2.40	5.52
3		50 - 75	3.42	7.45	3.98	9.50
4		75 - 100	4.51	11.96	4.86	14.36
5		100 - 125	5.84	17.80	6.09	20.45
6		125 - 150	5.74	23.54	5.92	26.37
7		150 - 175	3.40	26.94	3.49	29.86
8		175 - 200	2.52	29.46	2.57	32.43
9		200 - 225	2.49	31.95	2.52	34.95
10		225 - 250	3.46	35.41	3.41	38.36
11		250 - 275	4.12	39.53	3.98	42.34
12		275 - 300	4.06	43.59	3.90	46.24
13	ASTM D5236	300 - 350	11.60	55.19	11.15	57.39
14		350 - 375	6.63	61.82	6.36	63.75
15		375 - 400	6.34	68.16	6.09	69.84
16		400 - 425	6.62	74.78	6.35	76.19
17		425 - 450	6.68	81.46	6.40	82.59
18		450 - 475	6.31	87.77	6.04	88.63
19		475 - 500	4.11	91.88	3.93	92.56
20		500 + Residue	8.12	100.00	7.44	100.00



TRUE BOILING POINT DISTILLATION CURVE
(ASTM D2892 & ASTM D5236)

"CARGO SAMPLE B 80 OIL FIELD Dated 27-04-25"





LABORATORY REPORT NO. MUM/2655/25

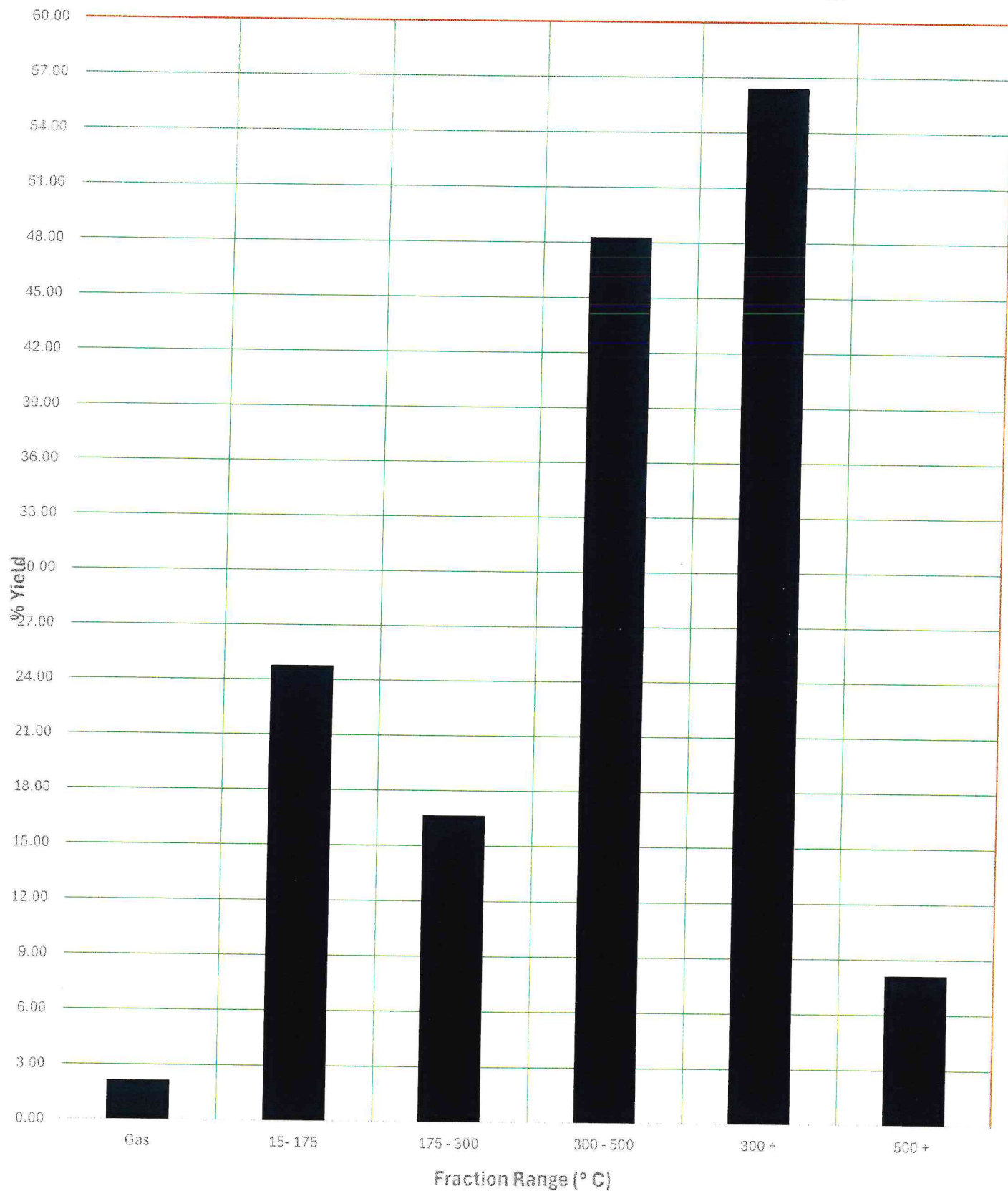
SUMMARY OF PRODUCT / RESIDUE CUT POINTS AND YIELDS

Sample Descriptions: CARGO SAMPLE B 80 OIL FIELD Dated 27-04-25

Products	Cut Points	Yield	
	(° C)	% Mass	Volume %
Gas	Below 15	2.16	3.12
Naphtha	15- 175	24.78	26.74
Gas Oil	175 - 300	16.65	16.38
Vacuum Gas Oil	300 - 500	48.29	46.32
Residues	300 +	56.41	53.76
	500 +	8.12	7.44

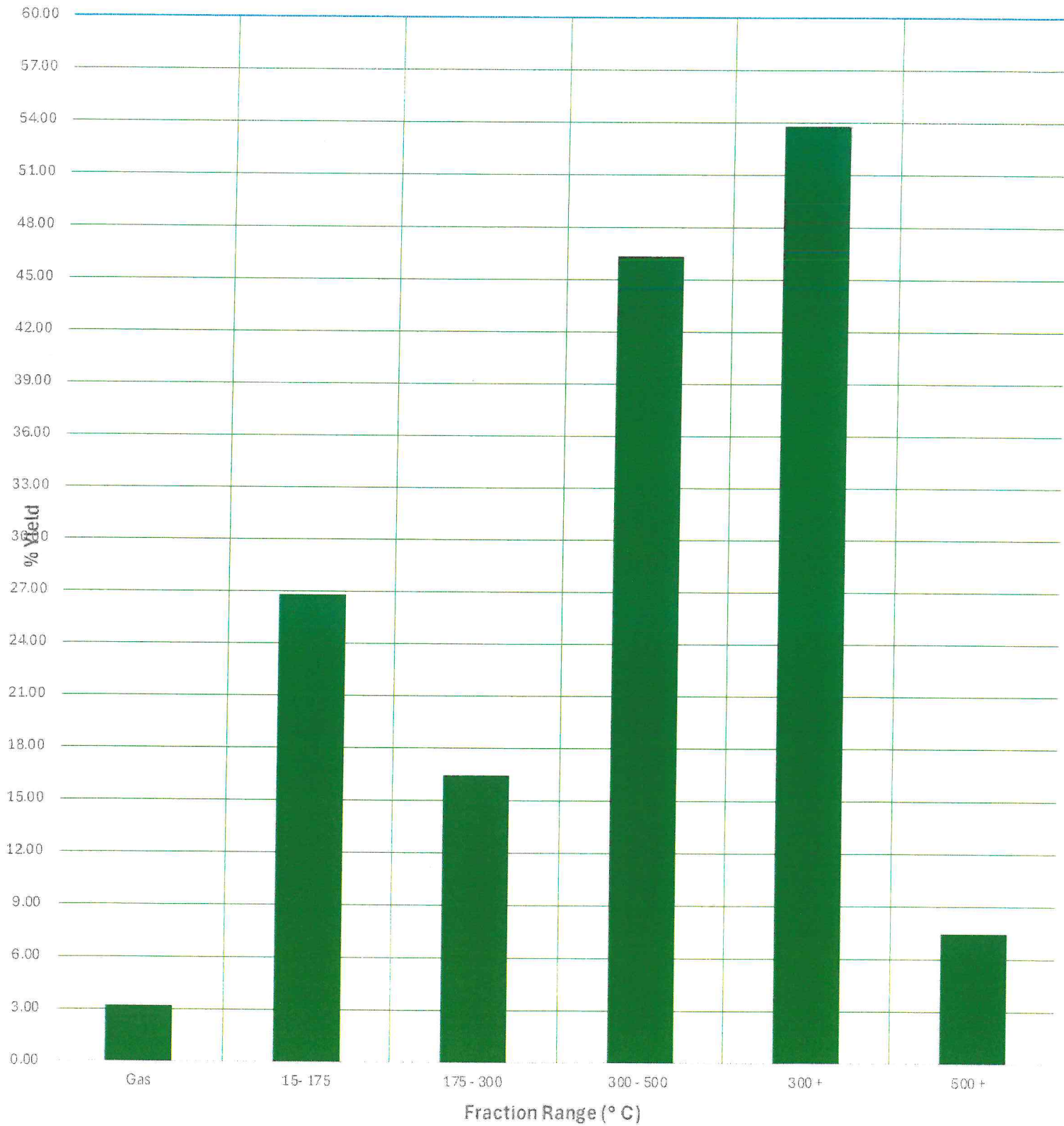


Yield Distribution-Graph (% Mass)
"CARGO SAMPLE B 80 OIL FIELD Dated 27-04-25"





Yield Distribution-Graph (% Volume)
"CARGO SAMPLE B 80 OIL FIELD Dated 27-04-25"





LABORATORY REPORT NO. MUM/2655/25

SUMMARY OF LIGHT END COMPOSITION

Sample Descriptions : CARGO SAMPLE B 80 OIL FIELD Dated 27-04-25

Tests	Methods	Units	Results
Yield	ASTM D 2892	% Wt.	2.16
Yield		% Vol.	3.12
Position on Crude	ASTM D 2892	% Wt.	0 - 2.16
		% Vol.	0 - 3.12
Density @ 15°C	GC / Calculated	kg/L	0.5645
Methane	GC	% Wt.	<0.010
Ethane			0.460
Propane			19.251
i-butane			25.249
n-Butane			52.378
i-pentane			1.841
n-Pentane			0.821



LABORATORY REPORT NO. MUM/2655/25

Sample Descriptions:

CARGO SAMPLE B 80 OIL FIELD Dated 27-04-25

Tests	Methods	Units	Results
Initial BP		°C	15
Final BP		°C	175
Yield	ASTM D2892	% Wt.	24.78
		% Vol.	26.74
Position on Crude	ASTM D2892	% Wt.	2.16 - 26.94
		% Vol.	3.12 - 29.86
Density @ 15°C	ASTM D4052	kg/L	0.7665
Specific Gravity @ 60/60° F	Conversion		0.7668
API Gravity @ 60° F	Calculated	° API	53.0
Benzene	ASTM D6730	% Wt.	4.74
Paraffins	ASTM D6730	% Vol.	49.142
Naphthene		% Vol.	20.290
Aromatics		% Vol.	30.076
Hydrogen Sulphide (Liquid Phase)	UOP163	ppm wt	<1
Mercaptan Sulphur	UOP 163	ppm wt	<3
Organic Chloride	ASTM D4929B	ppm wt	<1
Doctor Test	IP 30		Negative
Motor Octane Number	ASTM D2700	Rating	66
Copper Corrosion, 100°C, 2 hrs	ASTM D130	Rating	1a
Research Octane Number	ASTM D2699	Rating	68
Sulphur	ASTM D5453	% Wt.	0.0004
Distillation			
Initial Boiling Point	ASTM D86	°C	46.4
5% recovered		°C	74.4
10% recovered		°C	80.9
20% recovered		°C	89.5
30% recovered		°C	97.4
40% recovered		°C	104.6
50% recovered		°C	112.2
60% recovered		°C	119.9
70% recovered		°C	128.1
80% recovered		°C	137.1
90% recovered		°C	148.6
95% recovered		°C	158.7
Final Boiling Point		°C	167
Recovery		Vol %	98.5
Residue		Vol %	0.8
Loss		Vol %	0.7



LABORATORY REPORT NO. MUM/2655/25

Sample Descriptions:

CARGO SAMPLE B 80 OIL FIELD Dated 27-04-25

Tests	Methods	Units	Results
Initial BP	ASTM D2892	°C	175
Final BP		°C	300
Yield		% Wt.	16.65
Yield		% Vol.	16.38
Position on Crude	ASTM D2892	% Wt.	26.94 - 43.59
		% Vol.	29.86 - 46.24
Density @ 15° C	ASTM D4052	kg/L	0.8384
Specific Gravity @ 60/60° F	Conversion		0.8388
API Gravity @ 60° F	Calculated	° API	37.2
Aromatics			
Mono	IP 391	% Wt.	16.9
Di		% Wt.	>10 (21.5)
Tri		% Wt.	0.2
Poly		% Wt.	>12 (21.7)
Basic Nitrogen	UOP 269	ppm wt	4
Flash Point (PMCC)	ASTM D93	°C	80.5
Freezing Point	ASTM D2386	°C	-22
Color Saybolt	ASTM D156		+22
Copper Strip corrosion 100°C, 2 hrs	ASTM D130	Rating	1a
FIA - Aromatics	ASTM D1319	%Vol	33.5
FIA - Saturates	ASTM D1319	%Vol	65.3
Refractive Index @20°C	ASTM D1218	-	1.4742
Smoke Point	ASTM D1322	mm	15
Total Nitrogen	ASTM D4629	ppm wt	11
Total Sulphur	ASTM D5453	% Wt	0.0145
Distillation			
Initial Boiling Point	ASTM D86	°C	190.6
5% recovered		°C	207.9
10% recovered		°C	212.3
20% recovered		°C	218.9
30% recovered		°C	225.6
40% recovered		°C	233.2
50% recovered		°C	240.4
60% recovered		°C	247.7
70% recovered		°C	254.1
80% recovered		°C	260.8
90% recovered		°C	268.7
95% recovered		°C	274.8
Final Boiling Point		°C	282.5
Recovery		% Vol.	98.5
Residue		% Vol.	1.1
Loss		% Vol.	0.4



LABORATORY REPORT NO. MUM/2655/25

Sample Descriptions:

CARGO SAMPLE B 80 OIL FIELD Dated 27-04-25

Tests	Methods	Units	Results
Initial BP		°C	300
Final BP		°C	500
Yield	ASTM D2892/D5236	% Wt.	48.29
Yield		% Vol.	46.32
Position on Crude	ASTM D2892/D5236	% Wt.	43.59 - 91.88
		% Vol.	46.24 - 92.56
Density @ 15° C	ASTM D4052	kg/L	0.8588
Specific Gravity @ 60/60° F	Conversion		0.8593
API Gravity @ 60° F	Calculated	° API	33.2
Basic Nitrogen	UOP 269	ppm wt	72
Kinematic Viscosity @ 70°C	ASTM D445	cSt	170.6
Kinematic Viscosity @ 100°C	ASTM D445	cSt	3.189
Copper	ICPOES	ppm wt	<1
Iron	ICPOES	ppm wt	5
Nickel	ICPOES	ppm wt	<1
Vanadium	ICPOES	ppm wt	<1
Pour Point	ASTM D97	°C	+48
Total Nitrogen	ASTM D5762	ppm wt	180
Total Sulphur	ASTM D4294	% Wt	0.0746
Wax Content	UOP 46*	% Wt	51.0

Note: (*) Withdrawn method



LABORATORY REPORT NO. MUM/2655/25

Sample Descriptions:

CARGO SAMPLE B 80 OIL FIELD Dated 27-04-25

Tests	Methods	Units	Results	
Initial BP		°C	300 + Residue	500 + Residue
Final BP		°C		
Yield	ASTM D2892/D5236	% Wt.	56.41	8.12
Yield		% Vol.	53.76	7.44
Position on Crude	ASTM D2892/D5236	% Wt.	43.59 - 100	91.88 - 100
		% Vol.	46.24 - 100	92.56 - 100
Density @ 15° C	IP 365	kg/L	0.8645	0.9011
Specific Gravity @ 60/60° F	Conversion		0.8650	0.9016
API Gravity @ 60° F	Calculated	° API	32.1	25.4
Asphaltene	IP 143	% Wt.	<0.50	1.8
Carbon Residue- Micro	ASTM D4530	% Wt.	0.82	6.5
Kinematic Viscosity @ 70°C	ASTM D445	cSt	8.106	1086
Kinematic Viscosity @ 100°C			3.909	51.61
Kinematic Viscosity @ 135°C				18.95
Copper	ICPOES	ppm wt	<1	
Iron			8	
Nickel			<1	
Vanadium			<1	
Penetration	ASTM D5	0.1 mm		90
Pour Point	ASTM D97	°C	+45	+63
Total Sulphur	ASTM D4294	% Wt.	0.0885	0.171
Wax Content	UOP 46*	% Wt.	52.0	
Initial boiling point	ASTM D1160	°C	295.0	
AET @ 5% Recovery		°C	336.0	
AET @ 10% Recovery		°C	351.0	
AET @ 20% Recovery		°C	363.0	
AET @ 30% Recovery		°C	377.0	
AET @ 40% Recovery		°C	400.0	
AET @ 50% Recovery		°C	415.0	
AET @ 60% Recovery		°C	428.0	
AET @ 70% Recovery		°C	442.0	
AET @ 80% Recovery		°C	459.0	
AET @ 90% Recovery		°C	491.0	
AET @ 95% Recovery		°C	537.0	
Final Boiling Point		°C	584.0	

Note: (*) Withdrawn method

LABORATORY REPORT NO. MUM/2655/25

Sample Descriptions / Label : CARGO SAMPLE B 80 OIL FIELD Dated 27-04-25

COMPOSITION UP TO C9

Component	Mass %	Volume %	Component	Mass %	Volume %
propane	0.1142	0.2282	4-methylheptane	0.0699	0.0991
i-butane	0.1644	0.2950	3,4-dimethylhexane	0.0103	0.0143
n-butane	0.6098	1.0535	3-methylheptane	0.1536	0.2177
i-pentane	0.6125	0.9885	1c,2t,3-trimethylcyclopentane	0.3488	0.4528
n-pentane	1.1060	1.7662	1,1-dimethylcyclohexane	0.1089	0.1395
2,2-dimethylbutane	0.0196	0.0302	3c-ethylmethylcyclopentane	0.0401	0.0522
cyclopentane	0.1158	0.1554	3t-ethylmethylcyclopentane	0.0339	0.0442
2,3-dimethylbutane	0.0880	0.1331	2t-ethylmethylcyclopentane	0.0312	0.0406
2-methylpentane	0.6270	0.9600	1,1-methylethylcyclopentane	0.0443	0.0567
3-methylpentane	0.3373	0.5077	1c,2c,3-trimethylcyclopentane	0.1146	0.1471
n-hexane	1.4363	2.1782	unknown	0.0842	0.1203
unknown	0.0133	0.0190	n-octane	1.1729	1.6696
unknown	0.0125	0.0178	unknown	0.0895	0.1278
2,2-dimethylpentane	0.0148	0.0220	2,4,4-trimethylhexane	0.0110	0.0148
methylcyclopentane	0.5433	0.7258	2,2-dimethylheptane	0.0193	0.0271
2,4-dimethylpentane	0.0384	0.0571	N4	0.0312	0.0401
benzene	1.2171	1.3848	ethylcyclohexane	0.0317	0.0404
3,3-dimethylpentane	0.0121	0.0174	2,4-dimethylheptane	0.4146	0.5796
cyclohexane	0.9327	1.1981	4,4-dimethylheptane	0.0596	0.0833
2-methylhexane	0.2989	0.4405	2,5-dimethylheptane	0.0566	0.0789
2,3-dimethylpentane	0.0932	0.1340	3,3-dimethylheptane	0.0300	0.0413
1,1-dimethylcyclopentane	0.0482	0.0638	2,6-dimethylheptane	0.0145	0.0204
3-methylhexane	0.2754	0.4008	ethylbenzene	0.5500	0.6344
1c,3-dimethylcyclopentane	0.1202	0.1614	unknown	0.0203	0.0290
unknown	0.1185	0.1693	1c,2t,4t-trimethylcyclohexane	0.0301	0.0385
1t,3-dimethylcyclopentane	0.0154	0.0206	1,3-dimethylbenzene	1.8642	2.1572
3-ethylpentane	0.1763	0.2526	1,4-dimethylbenzene	0.6230	0.7236
n-heptane	1.3041	1.9074	N13	0.0380	0.0487
1,1,3-trimethylcyclopentane	0.0200	0.0267	4-methyloctane	0.0680	0.0944
methylcyclohexane	1.7038	2.2144	2-methyloctane	0.1148	0.1610
2,2-dimethylhexane	0.0443	0.0637	3-ethylheptane	0.0118	0.0162
ethylcyclopentane	0.0968	0.1263	3-methyloctane	0.1080	0.1499
2,5-dimethylhexane	0.0421	0.0607	1,2-dimethylbenzene	0.5757	0.6540
2,4-dimethylhexane	0.0347	0.0496	unknown	0.0180	0.0257
1c,2t,4-trimethylcyclopentane	0.0601	0.0787	I6	0.0342	0.0469
3,3-dimethylhexane	0.0113	0.0159	N18	0.0878	0.1125
1t,2c,3-trimethylcyclopentane	0.0511	0.0663	unknown	0.0468	0.0669
toluene	2.4885	2.8702	I8	0.0787	0.1078
2,3-dimethylhexane	0.0302	0.0424	N22	0.011	0.014
2-methyl-3-ethylpentane	0.0300	0.0421	i-butylcyclopentane	0.012	0.015
2-methylheptane	0.3288	0.4712	n-nonane	1.0854	1.5125

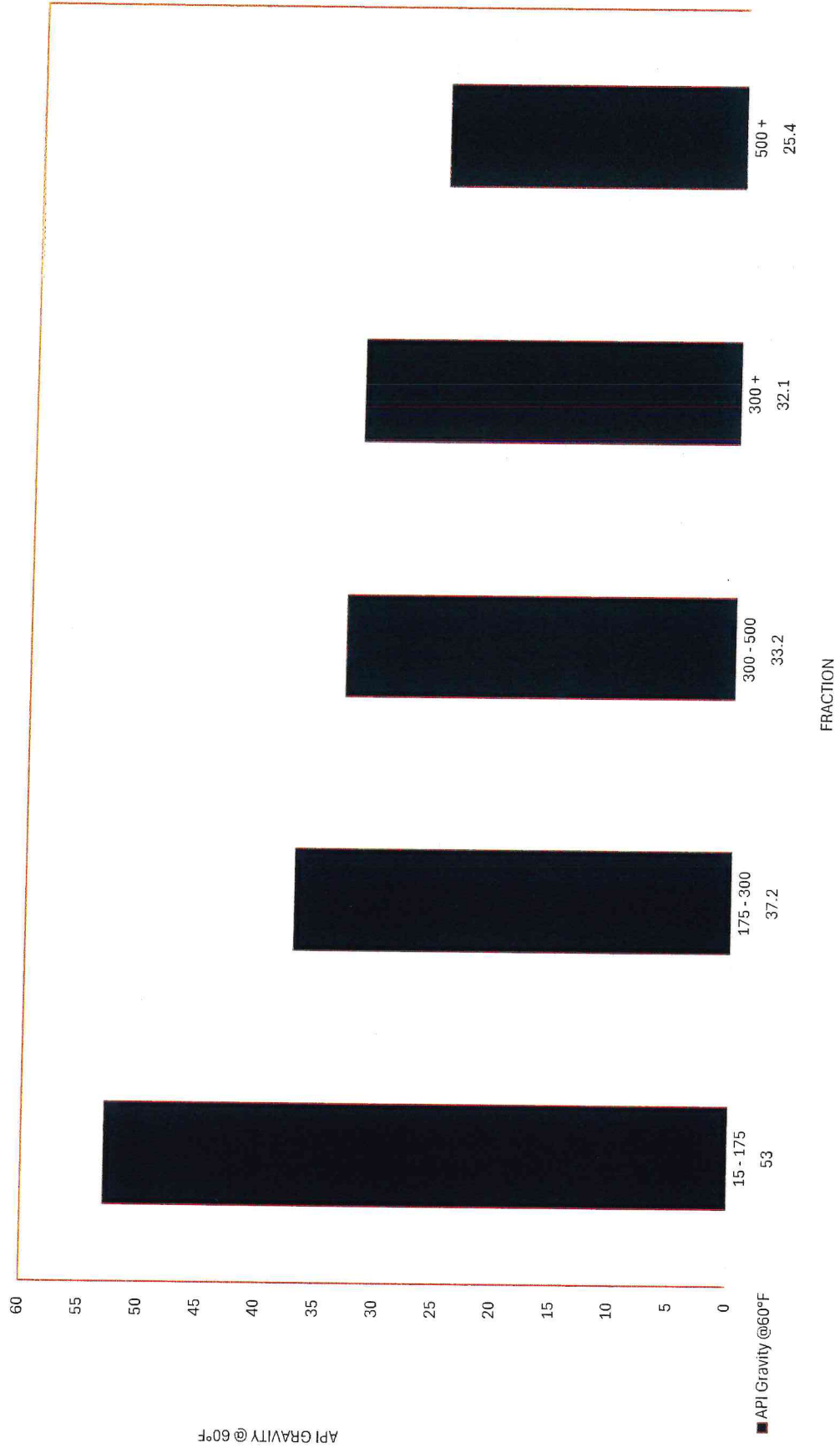




LABORATORY REPORT NO. MUM/2655/25

"CARGO SAMPLE B 80 OIL FIELD Dated 27-04-25"

Fractions Mid B.P. Vs API Gravity @ 60°F





"CARGO SAMPLE B 80 OIL FIELD Dated 27-04-25"

