



## **PetroTech Intel**

*Specializing In Crude Assay Information*

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**Crude Name: Sample Assay**  
**PTI Assay ID: SMP.01.2002**  
**Date: 14-Feb-08**

**Table 1****Whole Crude Information****SMP.01.2002**

**Assay** SMP.01.2002  
**Crude Grade Name** Sample Assay  
**Region**  
**Country**  
**State**  
**Assay Date**

		<b>Crude</b>	<b>Balance</b>
<b>Gravity</b>	API	38.3	39.0
<b>Specific Gravity</b>	60/60	0.8333	0.8300
<b>Density</b>	kg/dm <sup>3</sup>	0.8329	
<b>Sulfur</b>	WT%	0.37	0.38
<b>Mercaptan Sulfur</b>	ppm	4.2	
<b>H<sub>2</sub>S</b>	ppm		
<b>Nitrogen</b>	ppm	1000.0	964.9
<b>Basic Nitrogen</b>	ppm		269.9
<b>Con Carbon</b>	WT%	1.92	1.88
<b>Ramsbottom Carbon</b>	WT%		
<b>Ashpaltenes</b>	WT%		
<b>Iron</b>	ppm	0.5	
<b>Nickel</b>	ppm	1.1	1.1
<b>Vanadium</b>	ppm	5.5	5.8
<b>Sodium</b>	ppm		
<b>Pour Pt.</b>	Deg C	43.0	
<b>Salt</b>	PTB	4.0	
<b>Reid Vapor Pressure</b>	psi	6.3	
<b>TAN</b>	mgKOH/g	0.07	
<b>Water</b>	VOL%		
<b>Kin. Viscosity @</b>	<b>15.5C</b> cSt	6.47	6.47
	<b>20C</b> cSt		5.82
	<b>37.8C</b> cSt		4.03
	<b>40C</b> cSt	3.87	3.87
	<b>50C</b> cSt	3.26	3.26
	<b>60C</b> cSt		2.74

**Comments:**

Comments regarding this assay will be placed here and may be tailored to the user's needs.

This sample is provided to demonstrate PTI's hardcopy crude assay format. Data in the attached tables and graphs are provided as examples only.

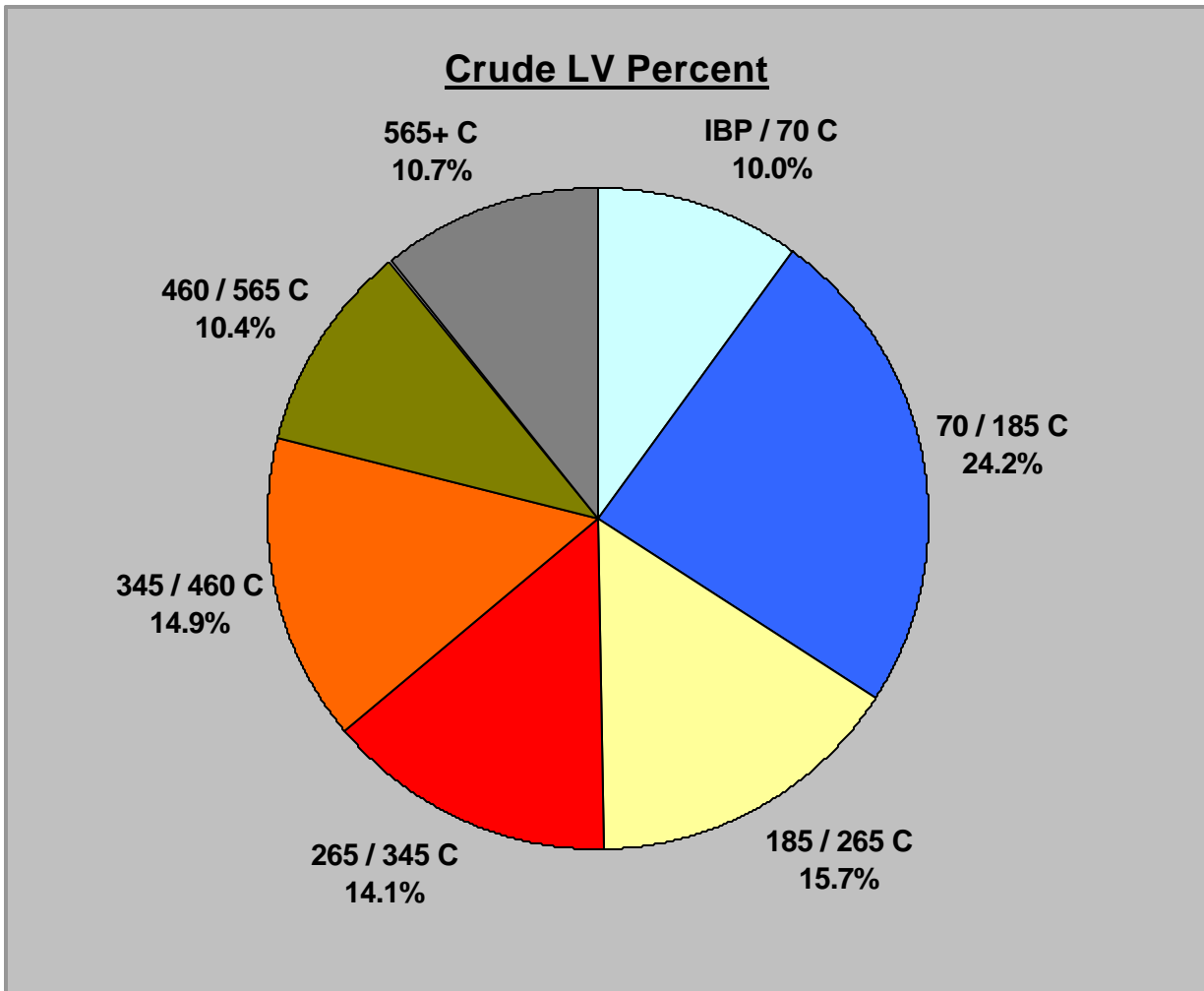
## Sample Assay : 38.3°

**Table 2**

**Whole Crude**

**SMP.01.2002**

		Crude	Balance
API Gravity	API	38.3	39.0
Specific Gravity		0.8333	0.8300
Sulfur	WT%	0.37	0.38
Nitrogen	ppm	1000	965
Nickel	ppm	1.1	1.1
Vanadium	ppm	5.5	5.8
TAN	mgKOH/g	0.07	
Pour Point	deg C	43.0	



Boiling Range	---- Volume Percent ----			---- Weight Percent ----			API
	Initial	Final	Yield	Initial	Final	Yield	Gravity
IBP / 70 C	0.00	9.99	9.99	0.00	7.49	7.49	95.8
70 / 185 C	9.99	34.16	24.17	7.49	29.63	22.14	54.7
185 / 265 C	34.16	49.86	15.69	29.63	45.17	15.53	40.7
265 / 345 C	49.86	63.99	14.13	45.17	59.74	14.57	33.8
345 / 460 C	63.99	78.89	14.91	59.74	75.81	16.07	26.6
460 / 565 C	78.89	89.30	10.41	75.81	87.34	11.52	22.5
565+ C	89.30	100.00	10.70	87.34	100.00	12.66	12.5

**Sample Assay : 38.3°**

**Table 3**

**Fractions 1**

**SMP.01.2002**

Deg C	Deg F	--- Volume ---			--- Weight ---			API Gravity Deg	Specific Gravity 60/60	Density @15 C Kg/L	K Factor	Vol Per 5Deg C
		Initial	Final	Cut	Initial	Final	Cut					
		Yield	Yield	Yield	Yield	Yield	Yield					
<b>C2</b>		0.00	0.03	0.03	0.00	0.02	0.02	246.8	0.3740	0.3741		
<b>C3</b>		0.03	0.95	0.92	0.02	0.58	0.56	147.0	0.5081	0.5082		
<b>IC4</b>		0.95	1.41	0.46	0.58	0.89	0.31	119.8	0.5631	0.5631		
<b>NC4</b>		1.41	3.24	1.83	0.89	2.17	1.28	110.8	0.5840	0.5840		
<b>IC5</b>		3.24	4.49	1.25	2.17	3.11	0.94	94.9	0.6250	0.6250		
<b>NC5</b>		4.49	6.63	2.14	3.11	4.72	1.61	92.7	0.6311	0.6311		
<b>NC5/70</b>	<b>NC5/158</b>	6.63	9.99	3.36	4.72	7.49	2.77	77.09	0.6784	0.6783	12.40	0.70
<b>70/85</b>	<b>158/185</b>	9.99	12.70	2.71	7.49	9.83	2.33	66.18	0.7158	0.7156	11.99	0.90
<b>85/100</b>	<b>185/212</b>	12.70	16.21	3.51	9.83	12.95	3.13	60.06	0.7387	0.7384	11.78	1.17
<b>100/115</b>	<b>212/239</b>	16.21	19.64	3.43	12.95	16.05	3.10	57.01	0.7506	0.7504	11.74	1.14
<b>115/135</b>	<b>239/275</b>	19.64	24.13	4.50	16.05	20.18	4.13	54.34	0.7614	0.7611	11.75	1.12
<b>135/150</b>	<b>275/302</b>	24.13	27.42	3.29	20.18	23.24	3.06	51.64	0.7727	0.7724	11.75	1.10
<b>150/170</b>	<b>302/338</b>	27.42	31.36	3.94	23.24	26.95	3.71	49.34	0.7825	0.7822	11.76	0.98
<b>170/185</b>	<b>338/365</b>	31.36	34.16	2.81	26.95	29.63	2.68	46.95	0.7929	0.7926	11.76	0.94
<b>185/205</b>	<b>365/401</b>	34.16	37.98	3.82	29.63	33.32	3.69	44.81	0.8025	0.8022	11.77	0.95
<b>205/225</b>	<b>401/437</b>	37.98	42.02	4.04	33.32	37.29	3.97	42.04	0.8154	0.8150	11.75	1.01
<b>225/245</b>	<b>437/473</b>	42.02	46.00	3.98	37.29	41.27	3.97	39.15	0.8292	0.8288	11.70	0.99
<b>245/265</b>	<b>473/509</b>	46.00	49.86	3.85	41.27	45.17	3.90	37.06	0.8395	0.8390	11.71	0.96
<b>265/285</b>	<b>509/545</b>	49.86	53.59	3.74	45.17	48.98	3.82	35.48	0.8474	0.8469	11.75	0.93
<b>285/305</b>	<b>545/581</b>	53.59	57.24	3.64	48.98	52.72	3.74	34.54	0.8522	0.8517	11.82	0.91
<b>305/325</b>	<b>581/617</b>	57.24	60.73	3.49	52.72	56.32	3.60	33.99	0.8550	0.8546	11.92	0.87
<b>325/345</b>	<b>617/653</b>	60.73	63.99	3.26	56.32	59.74	3.42	31.07	0.8704	0.8699	11.84	0.81
<b>345/365</b>	<b>653/689</b>	63.99	66.96	2.98	59.74	62.92	3.18	28.11	0.8865	0.8860	11.75	0.74
<b>365/385</b>	<b>689/725</b>	66.96	69.70	2.74	62.92	65.85	2.93	27.41	0.8904	0.8899	11.82	0.68
<b>385/400</b>	<b>725/752</b>	69.70	71.66	1.96	65.85	67.96	2.11	26.94	0.8931	0.8926	11.89	0.65
<b>400/415</b>	<b>752/779</b>	71.66	73.57	1.90	67.96	70.02	2.05	26.42	0.8960	0.8955	11.94	0.63
<b>415/430</b>	<b>779/806</b>	73.57	75.40	1.83	70.02	72.00	1.98	25.79	0.8996	0.8991	11.98	0.61
<b>430/445</b>	<b>806/833</b>	75.40	77.17	1.77	72.00	73.93	1.93	25.31	0.9023	0.9018	12.03	0.59
<b>445/460</b>	<b>833/860</b>	77.17	78.89	1.72	73.93	75.81	1.88	24.74	0.9056	0.9051	12.07	0.57
<b>460/475</b>	<b>860/887</b>	78.89	80.57	1.68	75.81	77.65	1.84	24.08	0.9095	0.9089	12.10	0.56
<b>475/490</b>	<b>887/914</b>	80.57	82.20	1.62	77.65	79.44	1.79	23.55	0.9126	0.9121	12.14	0.54
<b>490/505</b>	<b>914/941</b>	82.20	83.75	1.55	79.44	81.15	1.71	23.17	0.9149	0.9143	12.19	0.52
<b>505/520</b>	<b>941/968</b>	83.75	85.25	1.50	81.15	82.81	1.66	22.62	0.9181	0.9176	12.22	0.50
<b>520/535</b>	<b>968/995</b>	85.25	86.67	1.42	82.81	84.38	1.58	21.91	0.9224	0.9218	12.24	0.47
<b>535/550</b>	<b>995/1022</b>	86.67	88.02	1.35	84.38	85.89	1.51	21.03	0.9277	0.9271	12.25	0.45
<b>550/565</b>	<b>1022/1049</b>	88.02	89.30	1.28	85.89	87.34	1.44	20.15	0.9331	0.9325	12.25	0.43
<b>565+</b>	<b>1049+</b>	89.30	100.00	10.70	87.34	100.00	12.66	12.52	0.9825	0.9819	11.91	
<b>345+</b>	<b>653+</b>	63.99	100.00	36.01	59.74	100.00	40.26	20.99	0.9280	0.9274	11.92	



**Sample Assay : 38.3°**

**Table 5**

**Fractions 3**

**SMP.01.2002**

Deg C	Deg F	Pour Point C	Cloud Final C	Freeze Cut C	--- Viscosities ---					Diesel Index	-- Cetane --	
					@ 40 C	@ 60 C	@ 82 C	@ 100 C	@ 135 C		No.	Index
					cSt	cSt	cSt	cSt	cSt			
C2												
C3												
IC4												
NC4												
IC5												
NC5												
<b>NC5/70</b>	<b>NC5/158</b>	-121.7	-118.6	-116.3	0.35	0.30	0.26	0.24	0.20			
<b>70/85</b>	<b>158/185</b>	-115.5	-112.2	-109.5	0.40	0.35	0.30	0.27	0.22			
<b>85/100</b>	<b>185/212</b>	-109.8	-106.7	-103.8	0.46	0.40	0.34	0.31	0.25			
<b>100/115</b>	<b>212/239</b>	-103.7	-100.9	-97.9	0.53	0.45	0.38	0.34	0.28			
<b>115/135</b>	<b>239/275</b>	-96.3	-93.6	-90.3	0.62	0.52	0.44	0.39	0.31	60.92		
<b>135/150</b>	<b>275/302</b>	-88.3	-85.2	-81.8	0.72	0.60	0.50	0.44	0.35	60.44		
<b>150/170</b>	<b>302/338</b>	-79.9	-76.4	-73.1	0.84	0.69	0.57	0.49	0.39	60.38		30.5
<b>170/185</b>	<b>338/365</b>	-71.1	-67.6	-63.9	1.00	0.81	0.66	0.56	0.44	60.20		35.6
<b>185/205</b>	<b>365/401</b>	-62.1	-58.1	-53.7	1.20	0.95	0.76	0.65	0.49	60.12		39.9
<b>205/225</b>	<b>401/437</b>	-51.5	-47.6	-43.6	1.52	1.15	0.90	0.76	0.57	58.87		42.7
<b>225/245</b>	<b>437/473</b>	-40.6	-37.0	-33.0	1.95	1.42	1.08	0.89	0.66	56.82		44.3
<b>245/265</b>	<b>473/509</b>	-29.6	-26.2	-22.5	2.53	1.77	1.30	1.05	0.76	56.21		46.2
<b>265/285</b>	<b>509/545</b>	-18.6	-15.7	-12.5	3.31	2.22	1.58	1.27	0.89	56.68		48.1
<b>285/305</b>	<b>545/581</b>	-8.0	-5.6	-2.9	4.37	2.80	1.93	1.52	1.04	57.72		50.1
<b>305/325</b>	<b>581/617</b>	1.7	4.1	6.4	5.79	3.58	2.38	1.83	1.23	58.03		51.7
<b>325/345</b>	<b>617/653</b>	10.6	13.2		7.76	4.63	2.96	2.22	1.45	53.70		48.8
<b>345/365</b>	<b>653/689</b>	18.7	21.4		10.60	5.98	3.68	2.71	1.70	49.96		45.4
<b>365/385</b>	<b>689/725</b>	25.6	28.1		14.43	7.73	4.57	3.27	1.99	50.33		44.5
<b>385/400</b>	<b>725/752</b>	30.3	32.8		19.20	9.80	5.56	3.88	2.27	50.70		43.4
<b>400/415</b>	<b>752/779</b>	33.5	36.1		25.04	12.18	6.63	4.53	2.57	50.54		41.9
<b>415/430</b>	<b>779/806</b>	36.2			32.82	15.20	7.96	5.31	2.91	49.93		
<b>430/445</b>	<b>806/833</b>	38.7			42.72	18.86	9.52	6.21	3.28	49.44		
<b>445/460</b>	<b>833/860</b>	41.1			55.28	23.32	11.33	7.22	3.70	48.68		
<b>460/475</b>	<b>860/887</b>	43.4			71.34	28.76	13.46	8.40	4.17	47.72		
<b>475/490</b>	<b>887/914</b>	45.6			92.58	35.64	16.08	9.80	4.71	47.03		
<b>490/505</b>	<b>914/941</b>	47.8			121.87	44.68	19.37	11.51	5.35	46.67		
<b>505/520</b>	<b>941/968</b>	49.8			164.06	57.05	23.67	13.70	6.13	45.94		
<b>520/535</b>	<b>968/995</b>	51.8			227.3	74.56	29.46	16.56	7.10	44.86		
<b>535/550</b>	<b>995/1022</b>	53.7			324.0	99.7	37.37	20.34	8.32	43.39		
<b>550/565</b>	<b>1022/1049</b>	55.6			474.5	136.4	48.27	25.36	9.87	41.91		
<b>565+</b>	<b>1049+</b>	48.6			51926	6832		421.79	87.69			
<b>345+</b>	<b>653+</b>	34.4			194.6	67.81		16.04	7.03			

**Sample Assay : 38.3°**

**Table 6**

**Fractions 4**

**SMP.01.2002**

Deg C	Deg F	-- Sulfur --		-- Nitrogen --		CCAR	RAM	----- Metals -----			Neut No.
		Total Wt%	Merc ppm	Total ppm	Basic ppm			Fe ppm	Ni ppm	V ppm	
C2											
C3											
IC4											
NC4											
IC5											
NC5											
NC5/70	NC5/158	0.000	0.8								0.02
70/85	158/185	0.000	0.9								0.02
85/100	185/212	0.000	1.0								0.02
100/115	212/239	0.001	1.1								0.02
115/135	239/275	0.001	1.3								0.03
135/150	275/302	0.002	1.5	0.0	0.0						0.03
150/170	302/338	0.004	1.6	0.0	0.0						0.03
170/185	338/365	0.007	1.7	0.0	0.0						0.03
185/205	365/401	0.014	1.7	0.1	0.1						0.03
205/225	401/437	0.028	1.8	0.3	0.2						0.02
225/245	437/473	0.056	1.8	0.9	0.8						0.02
245/265	473/509	0.102	1.8	4.5	3.5						0.02
265/285	509/545	0.163	1.8	15.9	11.3						0.02
285/305	545/581	0.233	1.9	43.1	28.9						0.03
305/325	581/617	0.322	1.9	116.1	61.8						0.03
325/345	617/653	0.430	2.0	258.1	115.8	0.00		0.00	0.00	0.00	0.04
345/365	653/689	0.510	2.0	441.2	166.5	0.00		0.00	0.00	0.00	0.05
365/385	689/725	0.532		594.7	196.7	0.01		0.00	0.00	0.00	0.06
385/400	725/752	0.534		694.1	220.5	0.01		0.00	0.00	0.00	0.07
400/415	752/779	0.533		761.3	239.7	0.01		0.00	0.00	0.00	0.07
415/430	779/806	0.536		818.8	258.0	0.02		0.00	0.00	0.00	0.08
430/445	806/833	0.548		877.4	277.0	0.04		0.00	0.00	0.00	0.09
445/460	833/860	0.565		946.1	299.4	0.06		0.00	0.00	0.00	0.09
460/475	860/887	0.587		1033.4	328.4	0.09		0.00	0.00	0.00	0.09
475/490	887/914	0.617		1147.0	366.7	0.15		0.01	0.01	0.01	0.09
490/505	914/941	0.658		1291.3	416.0	0.26		0.01	0.01	0.01	0.09
505/520	941/968	0.709		1465.7	475.3	0.42		0.01	0.02	0.02	0.08
520/535	968/995	0.767		1668.2	540.3	0.68		0.02	0.03	0.06	0.08
535/550	995/1022	0.825		1894.0	605.5	1.09		0.05	0.08	0.24	0.07
550/565	1022/1049	0.878		2141.6	668.1	1.72		0.09	0.18	0.46	0.07
565+	1049+	1.274		5251	1348	14.30		20.64	8.52	45.55	0.12
345+	653+	0.818		2358	653	4.68		6.50	2.70	14.36	0.09

## Sample Assay : 38.3°

**Table 7**

**Naphthas**

**SMP.01.2002**

	Deg C Deg F	C5 - 70 C5 - 158	C5 - 100 C5 - 212	70 - 100 158 - 212	70 - 150 158 - 302	100 - 150 212 - 302	135 - 205 275 - 401	150 - 205 302 - 401
<b>Initial Yield</b>	Vol%	4.31	4.31	9.99	9.99	16.21	24.13	27.42
<b>Final Yield</b>	Vol%	9.99	16.21	16.21	27.42	27.42	37.98	37.98
<b>Cut Yield</b>	Vol%	5.68	11.90	6.22	17.43	11.21	13.85	10.56
<b>Initial Yield</b>	Wt%	2.98	2.98	7.49	7.49	12.95	20.18	23.24
<b>Final Yield</b>	Wt%	7.49	12.95	12.95	23.24	23.24	33.32	33.32
<b>Cut Yield</b>	Wt%	4.52	9.98	5.46	15.74	10.28	13.14	10.08
<b>Gravity</b>	API	82.7	71.7	62.7	57.2	54.3	48.1	47.0
<b>Specific Gravity</b>	60/60	0.6607	0.6963	0.7287	0.7497	0.7614	0.7878	0.7925
<b>Density @ 15C</b>	kg/dm3	0.6606	0.6961	0.7285	0.7495	0.7611	0.7875	0.7922
<b>K-Factor</b>		12.61	12.25	11.87	11.79	11.75	11.76	11.76
<b>Total Sulfur</b>	Wt%	0.0003	0.0003	0.0004	0.001	0.001	0.007	0.008
<b>Mercaptan Sul</b>	ppm	0.8	0.9	1.0	1.2	1.3	1.6	1.7
<b>Aniline Point</b>	Deg C		60.2	51.0	50.2	50.2	52.0	53.5
<b>Refractive Index</b>	@ 20C					1.4268	1.4358	1.4377
	@ 55C					1.4109	1.4203	1.4222
	@ 67C					1.4054	1.4150	1.4169
	@ 70C					1.4040	1.4136	1.4156
	@ 80C					1.3995	1.4092	1.4112
<b>Smoke Point</b>	mm		47.7	37.6	32.8	27.5	25.5	25.1
<b>Lum. No.</b>			107.9	86.4	75.5	62.8	58.0	57.0
<b>Paraffins</b>	Vol%	84.0	70.3	57.7	48.9	44.0	41.1	41.2
<b>Naphthenes</b>	Vol%	13.0	23.9	33.9	37.5	39.4	40.8	41.1
<b>Aromatics</b>	Vol%	3.0	5.8	8.4	13.7	16.6	18.1	17.6
<b>Carbon</b>	Wt%							
<b>Hydrogen</b>	Wt%							
<b>Reid Vapor Pres</b>	kPa	72.0	45.1	17.9	12.8	9.8	5.0	4.1
<b>RON - Clear **</b>		68.9	65.4	62.2	60.9	60.2	46.4	42.5
<b>MON - Clear **</b>		67.4	63.7	60.4	58.3	57.1	43.8	40.1
<b>Cetane Index</b>								35.6
<b>Diesel Index</b>							60.4	60.3
<b>Kinematic Vis.</b>	cSt							
<b>@ 40 C</b>	cSt	0.33	0.38	0.44	0.54	0.62	0.92	1.00
<b>@ 60 C</b>	cSt	0.29	0.33	0.37	0.46	0.52	0.75	0.80
<b>@ 82 C</b>	cSt	0.25	0.28	0.32	0.39	0.44	0.61	0.65
<b>@ 100 C</b>	cSt	0.23	0.26	0.29	0.35	0.39	0.53	0.56

\*\* RON and MON are calculated.



### Sample Assay

**Table 8**

### Hydrocarbon Analysis

**SMP.01.2002**
**Cut Boiling Range :** IBP - 150 Deg C

**Cut Vol% Interval :** 0 - 27.42 Vol%

**Cut Vol% Yield :** 27.42 Vol%

Component	Vol% On Cut	Vol% On Crude	Component	Vol% On Cut	Vol% On Crude
Ethane	0.122	0.034	Ethylcyclohexane	1.579	0.433
Propane	3.357	0.921	C8 Naphthenes	0.737	0.202
Normal Butane	6.678	1.831	1,4-Dimethylbenzene (P-Xylene)	0.400	0.110
Iso Butane	1.676	0.460	1,3-Dimethylbenzene (M-Xylene)	1.528	0.419
Normal Pentane	7.803	2.140	1,2-Dimethylbenzene (O-Xylene)	0.839	0.230
Iso Pentane	4.568	1.253	Ethylbenzene	0.852	0.234
Cyclopentane	0.878	0.241	Normal Nonane	2.416	0.663
Normal Hexane	6.815	1.869	2,6-Dimethylheptane	0.191	0.052
2-Methylpentane	3.638	0.998	3,3,4-Trimethylhexane	0.998	0.274
3-Methylpentane	2.126	0.583	4-MethylOctane	0.432	0.119
2,2-Dimethylbutane	0.089	0.024	2-MethylOctane	0.559	0.153
2,3-Dimethylbutane	0.343	0.094	3-MethylOctane	0.775	0.213
Methylcyclopentane	3.233	0.887	C9 Isoparaffins	0.445	0.122
Cyclohexane	3.538	0.970	C9 Naphthenes	2.140	0.587
Benzene	1.682	0.461	1,1,3-Trimethylcyclohexane	1.576	0.432
Normal Heptane	5.394	1.479	Isopropyl Benzene	0.133	0.037
2-Methylhexane	2.573	0.706	N-Propyl Benzene	0.203	0.056
3-Methylhexane	1.948	0.534	1-Methyl,4-EthylBenzene	0.070	0.019
2,2-Dimethylpentane	0.217	0.060	1,3,5-TrimethylBenzene	0.064	0.017
2,4-Dimethylpentane	0.006	0.002	1-Methyl-2-EthylBenzene	0.038	0.010
3,3-Dimethylpentane	0.047	0.013	1,2,3-TrimethylBenzene	0.013	0.003
1,cis-3-Dimethylcyclopentane	0.666	0.183	1,2,4-TrimethylBenzene	0.070	0.019
1,trans-2-Dimethylcyclopentane	1.418	0.389	Normal Decane	0.089	0.024
1,trans-3-Dimethylcyclopentane	0.614	0.168	C10 Isoparaffins	0.235	0.064
Ethylcyclopentane	0.299	0.082	C10 Naphthenes	0.407	0.112
Methylcyclohexane	5.608	1.538	---	---	---
Methylbenzene (Toluene)	3.567	0.978	---	---	---
Normal Octane	4.828	1.324	---	---	---
2,5-Dimethylhexane	0.203	0.056	---	---	---
2,4-Dimethylhexane	0.311	0.085	---	---	---
2,2,3-Trimethylpentane	0.076	0.021	---	---	---
2,3-Dimethylhexane	0.356	0.098	---	---	---
2-MethylHeptane	1.839	0.504	---	---	---
3-MethylHeptane	2.345	0.643	---	---	---
4-MethylHeptane	0.661	0.181	---	---	---
1,1,3-Trimethylcyclopentane	0.591	0.162	---	---	---
ctc-1,2,4-Trimethylcyclopentane	0.845	0.232	---	---	---
1,1,2-Trimethylcyclopentane	0.089	0.024	---	---	---
t-1,3-Ethylmethylcyclopentane	0.388	0.106	---	---	---
c-1,3-Ethylmethylcyclopentane	0.521	0.143	---	---	---
t-1,2-Ethylmethylcyclopentane	0.273	0.075	---	---	---
c-1,2-Dimethylcyclohexane	0.318	0.087	---	---	---
c-1,4-Dimethylcyclohexane	0.032	0.009	---	---	---
t-1,4-Dimethylcyclohexane	0.038	0.010	---	---	---
t-1,2-Dimethylcyclohexane	0.591	0.162	---	---	---

Vol% On Cut	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	TOTAL
N-Paraffins	0.12	3.36	6.68	7.80	6.82	5.39	4.82	2.42	0.09	0.00	0.00	37.49
I-Paraffins	0.00	0.00	1.68	4.57	6.20	4.79	5.79	3.40	0.24	0.00	0.00	26.67
Total Paraffins	0.12	3.36	8.35	12.37	13.01	10.18	10.62	5.82	0.32	0.00	0.00	64.16
Cyclopentanes	0.00	0.00	0.00	0.88	3.23	3.00	2.71	2.14	0.41	0.00	0.00	12.36
Cyclohexanes	0.00	0.00	0.00	0.00	3.54	5.60	3.30	1.58	0.00	0.00	0.00	14.01
Total Naphthenes	0.00	0.00	0.00	0.88	6.77	8.60	6.00	3.72	0.41	0.00	0.00	26.38
Aromatics	0.00	0.00	0.00	0.00	1.68	3.57	3.62	0.59	0.00	0.00	0.00	9.46
<b>Total</b>	<b>0.12</b>	<b>3.36</b>	<b>8.35</b>	<b>13.25</b>	<b>21.47</b>	<b>22.35</b>	<b>20.24</b>	<b>10.13</b>	<b>0.73</b>	<b>0.00</b>	<b>0.00</b>	<b>100.00</b>

Vol% On Crude	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	TOTAL
N-Paraffins	0.03	0.92	1.83	2.14	1.87	1.48	1.32	0.66	0.02	0.00	0.00	10.28
I-Paraffins	0.00	0.00	0.46	1.25	1.70	1.31	1.59	0.93	0.06	0.00	0.00	7.31
Total Paraffins	0.03	0.92	2.29	3.39	3.57	2.79	2.91	1.60	0.09	0.00	0.00	17.59
Cyclopentanes	0.00	0.00	0.00	0.24	0.89	0.82	0.74	0.59	0.11	0.00	0.00	3.39
Cyclohexanes	0.00	0.00	0.00	0.00	0.97	1.54	0.90	0.43	0.00	0.00	0.00	3.84
Total Naphthenes	0.00	0.00	0.00	0.24	1.86	2.36	1.65	1.02	0.11	0.00	0.00	7.23
Aromatics	0.00	0.00	0.00	0.00	0.46	0.98	0.99	0.16	0.00	0.00	0.00	2.59
<b>Total</b>	<b>0.03</b>	<b>0.92</b>	<b>2.29</b>	<b>3.63</b>	<b>5.89</b>	<b>6.13</b>	<b>5.55</b>	<b>2.78</b>	<b>0.20</b>	<b>0.00</b>	<b>0.00</b>	<b>27.42</b>





### Sample Assay

**Table 8c**

#### Hydrocarbon Analysis

**SMP.01.2002**
**Cut Boiling Range :** 70 - 150 Deg C

**Cut Vol% Interval :** 9.99 - 27.42 Vol%

**Cut Vol% Yield :** 17.43 Vol%

<u>Component</u>	<u>Vol% On Cut</u>	<u>Vol% On Crude</u>	<u>Component</u>	<u>Vol% On Cut</u>	<u>Vol% On Crude</u>
Normal Butane	0.010	0.002	1,2-Dimethylbenzene (O-Xylene)	1.320	0.230
Normal Pentane	0.230	0.040	Ethylbenzene	1.340	0.234
Iso Pentane	0.050	0.009	Normal Nonane	3.790	0.661
Cyclopentane	0.170	0.030	2,6-Dimethylheptane	0.300	0.052
Normal Hexane	4.640	0.809	3,3,4-Trimethylhexane	1.570	0.274
2-Methylpentane	1.200	0.209	4-MethylOctane	0.680	0.119
3-Methylpentane	0.950	0.166	2-MethylOctane	0.880	0.153
2,3-Dimethylbutane	0.100	0.017	3-MethylOctane	1.220	0.213
Methylcyclopentane	3.000	0.523	C9 Isoparaffins	0.700	0.122
Cyclohexane	4.600	0.802	C9 Naphthenes	3.360	0.586
Benzene	1.600	0.279	1,1,3-Trimethylcyclohexane	2.480	0.432
Normal Heptane	8.430	1.469	Isopropyl Benzene	0.210	0.037
2-Methylhexane	3.860	0.673	N-Propyl Benzene	0.320	0.056
3-Methylhexane	2.970	0.518	1-Methyl,4-EthylBenzene	0.110	0.019
2,2-Dimethylpentane	0.270	0.047	1,3,5-TrimethylBenzene	0.100	0.017
2,4-Dimethylpentane	0.010	0.002	1-Methyl-2-EthylBenzene	0.060	0.010
3,3-Dimethylpentane	0.070	0.012	1,2,3-TrimethylBenzene	0.020	0.003
1,cis-3-Dimethylcyclopentane	1.010	0.176	1,2,4-TrimethylBenzene	0.110	0.019
1,trans-2-Dimethylcyclopentane	2.170	0.378	Normal Decane	0.140	0.024
1,trans-3-Dimethylcyclopentane	0.940	0.164	C10 Isoparaffins	0.370	0.064
Ethylcyclopentane	0.470	0.082	C10 Naphthenes	0.640	0.112
Methylcyclohexane	8.790	1.532	---	---	---
Methylbenzene (Toluene)	5.600	0.976	---	---	---
Normal Octane	7.590	1.323	---	---	---
2,5-Dimethylhexane	0.320	0.056	---	---	---
2,4-Dimethylhexane	0.490	0.085	---	---	---
2,2,3-Trimethylpentane	0.120	0.021	---	---	---
2,3-Dimethylhexane	0.560	0.098	---	---	---
2-MethylHeptane	2.890	0.504	---	---	---
3-MethylHeptane	3.690	0.643	---	---	---
4-MethylHeptane	1.040	0.181	---	---	---
1,1,3-Trimethylcyclopentane	0.930	0.162	---	---	---
ctc-1,2,4-Trimethylcyclopentane	1.330	0.232	---	---	---
1,1,2-Trimethylcyclopentane	0.140	0.024	---	---	---
t-1,3-Ethylmethylcyclopentane	0.610	0.106	---	---	---
c-1,3-Ethylmethylcyclopentane	0.820	0.143	---	---	---
t-1,2-Ethylmethylcyclopentane	0.430	0.075	---	---	---
c-1,2-Dimethylcyclohexane	0.500	0.087	---	---	---
c-1,4-Dimethylcyclohexane	0.050	0.009	---	---	---
t-1,4-Dimethylcyclohexane	0.060	0.010	---	---	---
t-1,2-Dimethylcyclohexane	0.930	0.162	---	---	---
Ethylcyclohexane	2.480	0.432	---	---	---
C8 Naphthenes	1.160	0.202	---	---	---
1,4-Dimethylbenzene (P-Xylene)	0.630	0.110	---	---	---
1,3-Dimethylbenzene (M-Xylene)	2.400	0.418	---	---	---

<u>Vol% On Cut</u>	<u>C2</u>	<u>C3</u>	<u>C4</u>	<u>C5</u>	<u>C6</u>	<u>C7</u>	<u>C8</u>	<u>C9</u>	<u>C10</u>	<u>C11</u>	<u>C12</u>	<u>TOTAL</u>
N-Paraffins	0.00	0.00	0.01	0.23	4.64	8.42	7.58	3.79	0.14	0.00	0.00	24.81
I-Paraffins	0.00	0.00	0.00	0.05	2.25	7.18	9.11	5.35	0.37	0.00	0.00	24.31
Total Paraffins	0.00	0.00	0.01	0.28	6.89	15.60	16.69	9.14	0.51	0.00	0.00	49.12
Cyclopentanes	0.00	0.00	0.00	0.17	3.00	4.59	4.26	3.36	0.64	0.00	0.00	16.02
Cyclohexanes	0.00	0.00	0.00	0.00	4.60	8.78	5.18	2.48	0.00	0.00	0.00	21.04
Total Naphthenes	0.00	0.00	0.00	0.17	7.60	13.37	9.44	5.84	0.64	0.00	0.00	37.06
Aromatics	0.00	0.00	0.00	0.00	1.60	5.60	5.69	0.93	0.00	0.00	0.00	13.82
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.01</b>	<b>0.45</b>	<b>16.09</b>	<b>34.57</b>	<b>31.82</b>	<b>15.91</b>	<b>1.15</b>	<b>0.00</b>	<b>0.00</b>	<b>100.00</b>

<u>Vol% On Crude</u>	<u>C2</u>	<u>C3</u>	<u>C4</u>	<u>C5</u>	<u>C6</u>	<u>C7</u>	<u>C8</u>	<u>C9</u>	<u>C10</u>	<u>C11</u>	<u>C12</u>	<u>TOTAL</u>
N-Paraffins	0.00	0.00	0.00	0.04	0.81	1.47	1.32	0.66	0.02	0.00	0.00	4.32
I-Paraffins	0.00	0.00	0.00	0.01	0.39	1.25	1.59	0.93	0.06	0.00	0.00	4.24
Total Paraffins	0.00	0.00	0.00	0.05	1.20	2.72	2.91	1.59	0.09	0.00	0.00	8.56
Cyclopentanes	0.00	0.00	0.00	0.03	0.52	0.80	0.74	0.59	0.11	0.00	0.00	2.79
Cyclohexanes	0.00	0.00	0.00	0.00	0.80	1.53	0.90	0.43	0.00	0.00	0.00	3.67
Total Naphthenes	0.00	0.00	0.00	0.03	1.32	2.33	1.65	1.02	0.11	0.00	0.00	6.46
Aromatics	0.00	0.00	0.00	0.00	0.28	0.98	0.99	0.16	0.00	0.00	0.00	2.41
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.08</b>	<b>2.80</b>	<b>6.03</b>	<b>5.55</b>	<b>2.77</b>	<b>0.20</b>	<b>0.00</b>	<b>0.00</b>	<b>17.43</b>

## Sample Assay : 38.3°

**Table 9**

**Kerosenes**

**SMP.01.2002**

	<b>Deg C</b> <b>Deg F</b>	<b>150 - 265</b> <b>302 - 509</b>	<b>150 - 245</b> <b>302 - 473</b>	<b>150 - 225</b> <b>302 - 437</b>	<b>170 - 265</b> <b>338 - 509</b>	<b>170 - 245</b> <b>338 - 473</b>	<b>205 - 265</b> <b>401 - 509</b>	<b>205 - 245</b> <b>401 - 473</b>
<b>Initial Yield</b>	Vol%	27.42	27.42	27.42	31.36	31.36	37.98	37.98
<b>Final Yield</b>	Vol%	49.86	46.00	42.02	49.86	46.00	49.86	46.00
<b>Cut Yield</b>	Vol%	22.44	18.58	14.60	18.50	14.64	11.88	8.02
<b>Initial Yield</b>	Wt%	23.24	23.24	23.24	26.95	26.95	33.32	33.32
<b>Final Yield</b>	Wt%	45.17	41.27	37.29	45.17	41.27	45.17	41.27
<b>Cut Yield</b>	Wt%	21.93	18.03	14.06	18.22	14.32	11.84	7.95
<b>Gravity</b>	API	42.9	44.2	45.6	41.6	42.9	39.4	40.6
<b>Specific Gravity</b>	60/60	0.8112	0.8053	0.7988	0.8173	0.8115	0.8278	0.8222
<b>Density @ 15C</b>	kg/dm3	0.8108	0.8050	0.7985	0.8169	0.8111	0.8274	0.8218
<b>K-Factor</b>		11.75	11.76	11.76	11.74	11.75	11.72	11.73
<b>Total Sulfur</b>	Wt%	0.037	0.023	0.014	0.044	0.028	0.062	0.042
<b>Mercaptan Sul</b>	ppm	1.7	1.7	1.7	1.8	1.7	1.8	1.8
<b>Total Nitrogen</b>	Wt%	1.0	0.3	0.1	1.2	0.4	1.9	0.6
<b>Basic Nitrogen</b>	ppm	0.8	0.2	0.1	1.0	0.3	1.5	0.5
<b>Aniline Point</b>	Deg C	58.6	57.0	55.3	60.4	58.7	63.1	61.4
<b>Refractive Index</b>	@ 20C	1.4478	1.4446	1.4410	1.4509	1.4476	1.4568	1.4538
	@ 55C	1.4327	1.4294	1.4257	1.4359	1.4325	1.4420	1.4388
	@ 67C	1.4275	1.4242	1.4204	1.4307	1.4273	1.4369	1.4337
	@ 70C	1.4262	1.4229	1.4191	1.4295	1.4260	1.4357	1.4324
	@ 80C	1.4219	1.4185	1.4147	1.4252	1.4217	1.4314	1.4282
<b>Smoke Point</b>	mm	22.2	23.3	24.3	21.5	22.6	20.1	21.2
<b>Lum. No.</b>		49.6	52.4	55.0	47.8	50.8	44.2	47.2
<b>Pour Point</b>	Deg C	-55.1	-60.3	-65.7	-49.8	-55.1	-40.8	-46.1
<b>Cloud Point</b>	Deg C	-45.8	-52.4	-60.3	-42.3	-48.6	-36.0	-41.9
<b>Freeze Point</b>	Deg C	-42.0	-48.4	-55.6	-38.6	-44.6	-32.2	-37.9
<b>Paraffins</b>	Vol%	44.0	43.5	42.5	44.9	44.5	46.5	46.4
<b>Naphthenes</b>	Vol%	38.3	40.2	41.2	37.9	40.2	35.8	38.9
<b>Aromatics</b>	Vol%	17.7	16.3	16.3	17.2	15.3	17.8	14.6
<b>Naphthalenes</b>	Vol%							
<b>Carbon</b>	Wt%							
<b>Hydrogen</b>	Wt%							
<b>Cetane Index</b>		41.8	40.2	38.2	43.1	41.8	44.6	43.6
<b>Diesel Index</b>		59.0	59.5	60.0	58.6	59.0	57.4	57.9
<b>Kinematic Vis.</b>	cSt							
<b>@ 40 C</b>	cSt	1.40	1.25	1.12	1.57	1.40	1.93	1.71
<b>@ 60 C</b>	cSt	1.07	0.97	0.89	1.19	1.08	1.42	1.28
<b>@ 82 C</b>	cSt	0.84	0.77	0.71	0.92	0.84	1.07	0.98
<b>@ 100 C</b>	cSt	0.71	0.66	0.61	0.77	0.72	0.89	0.82
<b>Total Acid No.</b>	mgKOH/g	0.02	0.03	0.03	0.02	0.02	0.02	0.02

## Sample Assay : 38.3°

**Table 10**

**Distillates**

**SMP.01.2002**

	<b>Deg C</b> <b>Deg F</b>	<b>150 - 365</b> <b>302 - 689</b>	<b>170 - 325</b> <b>338 - 617</b>	<b>205 - 305</b> <b>401 - 581</b>	<b>205 - 345</b> <b>401 - 662</b>	<b>245 - 305</b> <b>473 - 581</b>	<b>245 - 345</b> <b>473 - 662</b>	<b>305 - 365</b> <b>581 - 689</b>
<b>Initial Yield</b>	Vol%	27.42	31.36	37.98	37.98	46.00	46.00	57.24
<b>Final Yield</b>	Vol%	66.96	60.73	57.24	63.99	57.24	63.99	66.96
<b>Cut Yield</b>	Vol%	39.54	29.37	19.26	26.01	11.23	17.98	9.73
<b>Initial Yield</b>	Wt%	23.24	26.95	33.32	33.32	41.27	41.27	52.72
<b>Final Yield</b>	Wt%	62.92	56.32	52.72	59.74	52.72	59.74	62.92
<b>Cut Yield</b>	Wt%	39.68	29.37	19.40	26.42	11.45	18.47	10.20
<b>Gravity</b>	API	38.4	39.0	37.7	36.3	35.7	34.5	31.2
<b>Specific Gravity</b>	60/60	0.8328	0.8300	0.8362	0.8430	0.8462	0.8523	0.8698
<b>Density @ 15C</b>	kg/dm3	0.8324	0.8295	0.8358	0.8426	0.8458	0.8519	0.8693
<b>K-Factor</b>		11.78	11.77	11.74	11.78	11.76	11.80	11.84
<b>Total Sulfur</b>	Wt%	0.17	0.12	0.11	0.18	0.17	0.24	0.42
<b>Total Nitrogen</b>	ppm	74.3	22.5	12.6	58.4	20.9	83.3	265.1
<b>Basic Nitrogen</b>	ppm	33.2	13.3	8.7	29.8	14.4	42.4	112.6
<b>Aniline Point</b>	Deg C	66.5	65.7	67.0	69.8	70.8	73.4	78.7
<b>Refractive Index</b>	@ 20C	1.4599	1.4576	1.4608	1.4652	1.4658	1.4702	1.4821
	@ 55C	1.4453	1.4429	1.4462	1.4508	1.4515	1.4562	1.4685
	@ 67C	1.4403	1.4379	1.4412	1.4459	1.4465	1.4513	1.4639
	@ 70C	1.4390	1.4366	1.4399	1.4447	1.4453	1.4501	1.4627
	@ 80C	1.4349	1.4324	1.4358	1.4406	1.4412	1.4461	1.4589
<b>Smoke Point</b>	mm			17.9		16.1		
<b>Lum. No.</b>				38.5		33.6		
<b>Pour Point</b>	Deg C	-29.3	-34.0	-30.1	-19.3	-18.6	-8.2	10.2
<b>Cloud Point</b>	Deg C	-18.2	-24.9	-24.5	-13.9	-15.4	-5.3	12.8
<b>Freeze Point</b>	Deg C		-21.9	-21.2		-12.2		
<b>Paraffins</b>	Vol%							
<b>Naphthenes</b>	Vol%							
<b>Aromatics</b>	Vol%		23.6	23.8	27.3	30.3	33.0	
<b>Carbon</b>	Wt%							
<b>Hydrogen</b>	Wt%							
<b>Cetane Index</b>		47.6	47.0	46.9	48.7	48.4	49.7	48.9
<b>Diesel Index</b>		58.3	58.6	57.5	57.3	56.9	56.7	54.1
<b>Kinematic Vis.</b>	cSt							
<b>@ 40 C</b>	cSt	2.40	2.22	2.47	3.12	3.28	4.22	7.63
<b>@ 60 C</b>	cSt	1.70	1.59	1.74	2.13	2.21	2.74	4.54
<b>@ 82 C</b>	cSt	1.26	1.19	1.28	1.53	1.57	1.90	2.91
<b>@ 100 C</b>	cSt	1.03	0.98	1.05	1.23	1.26	1.49	2.19
<b>Total Acid No.</b>	mgKOH/g	0.03	0.03	0.02	0.03	0.03	0.03	0.04

**Sample Assay : 38.3°**

**Table 11**

**Gas Oils**

**SMP.01.2002**

	<b>Deg C Deg F</b>	<b>345 - 400 653 - 752</b>	<b>345 - 460 653 - 860</b>	<b>345 - 565 653 - 1049</b>	<b>400 - 505 752 - 932</b>	<b>445 - 505 833 - 941</b>	<b>460 - 565 860 - 1049</b>	<b>505 - 565 941 - 1049</b>
<b>Initial Yield</b>	Vol%	63.99	63.99	63.99	71.66	77.17	78.89	83.75
<b>Final Yield</b>	Vol%	71.66	78.89	89.30	83.75	83.75	89.30	89.30
<b>Cut Yield</b>	Vol%	7.67	14.91	25.31	12.09	6.58	10.41	5.55
<b>Initial Yield</b>	Wt%	59.74	59.74	59.74	67.96	73.93	75.81	81.15
<b>Final Yield</b>	Wt%	67.96	75.81	87.34	81.15	81.15	87.34	87.34
<b>Cut Yield</b>	Wt%	8.23	16.07	27.60	13.18	7.22	11.52	6.19
<b>Gravity</b>	API	27.6	26.6	24.9	24.8	23.9	22.5	21.5
<b>Specific Gravity</b>	60/60	0.8896	0.8950	0.9049	0.9054	0.9105	0.9191	0.9250
<b>Density @ 15C</b>	kg/dm3	0.8891	0.8945	0.9044	0.9048	0.9100	0.9185	0.9244
<b>K-Factor</b>		11.81	11.90	12.01	12.06	12.12	12.19	12.24
<b>Total Sulfur</b>	Wt%	0.52	0.53	0.61	0.58	0.61	0.71	0.79
<b>Total Nitrogen</b>	ppm	560.9	701.4	1030.6	972.3	1099.9	1489.9	1779.3
<b>Basic Nitrogen</b>	ppm	191.1	228.6	332.0	308.9	351.1	476.3	568.6
<b>Aniline Point</b>	Deg C	83.6	86.8	90.2	91.3	92.7	94.9	96.4
<b>Refractive Index</b>	@ 20C	1.4931	1.4946	1.5000	1.4990	1.5021	1.5084	1.5132
	@ 55C	1.4800	1.4819	1.4876	1.4867	1.4898	1.4960	1.5005
	@ 67C	1.4755	1.4775	1.4834	1.4825	1.4857	1.4918	1.4961
	@ 70C	1.4744	1.4764	1.4823	1.4815	1.4846	1.4907	1.4950
	@ 80C	1.4706	1.4728	1.4788	1.4779	1.4811	1.4872	1.4914
<b>Pour Point</b>	Deg C	24.2	30.8	38.8	40.7	44.4	49.4	52.6
<b>Iron</b>	ppm	0.00	0.00	0.01	0.00	0.00	0.03	0.04
<b>Nickel</b>	ppm	0.00	0.00	0.02	0.00	0.01	0.04	0.07
<b>Vanadium</b>	ppm	0.00	0.00	0.04	0.00	0.01	0.10	0.18
<b>Conradson C</b>	Wt%	0.01	0.02	0.26	0.09	0.14	0.59	0.96
<b>Ramsbottom C</b>	Wt%							
<b>Diesel Index</b>		50.3	50.1	48.3	48.7	47.6	45.6	44.1
<b>Kinematic Vis.</b>	cSt							
<b>@ 40 C</b>	cSt	13.69	21.54	44.86	52.04	80.13	158.22	265.58
<b>@ 60 C</b>	cSt	7.41	10.78	19.84	22.25	31.67	55.50	84.81
<b>@ 82 C</b>	cSt	4.40	6.01	9.99	10.92	14.59	23.16	32.75
<b>@ 100 C</b>	cSt	3.17	4.16	6.50	7.00	9.00	13.46	18.15
<b>Total Acid No.</b>	mgKOH/g	0.06	0.07	0.07	0.09	0.09	0.08	0.07

**Sample Assay : 38.3°**

**Table 12**

**Residua**

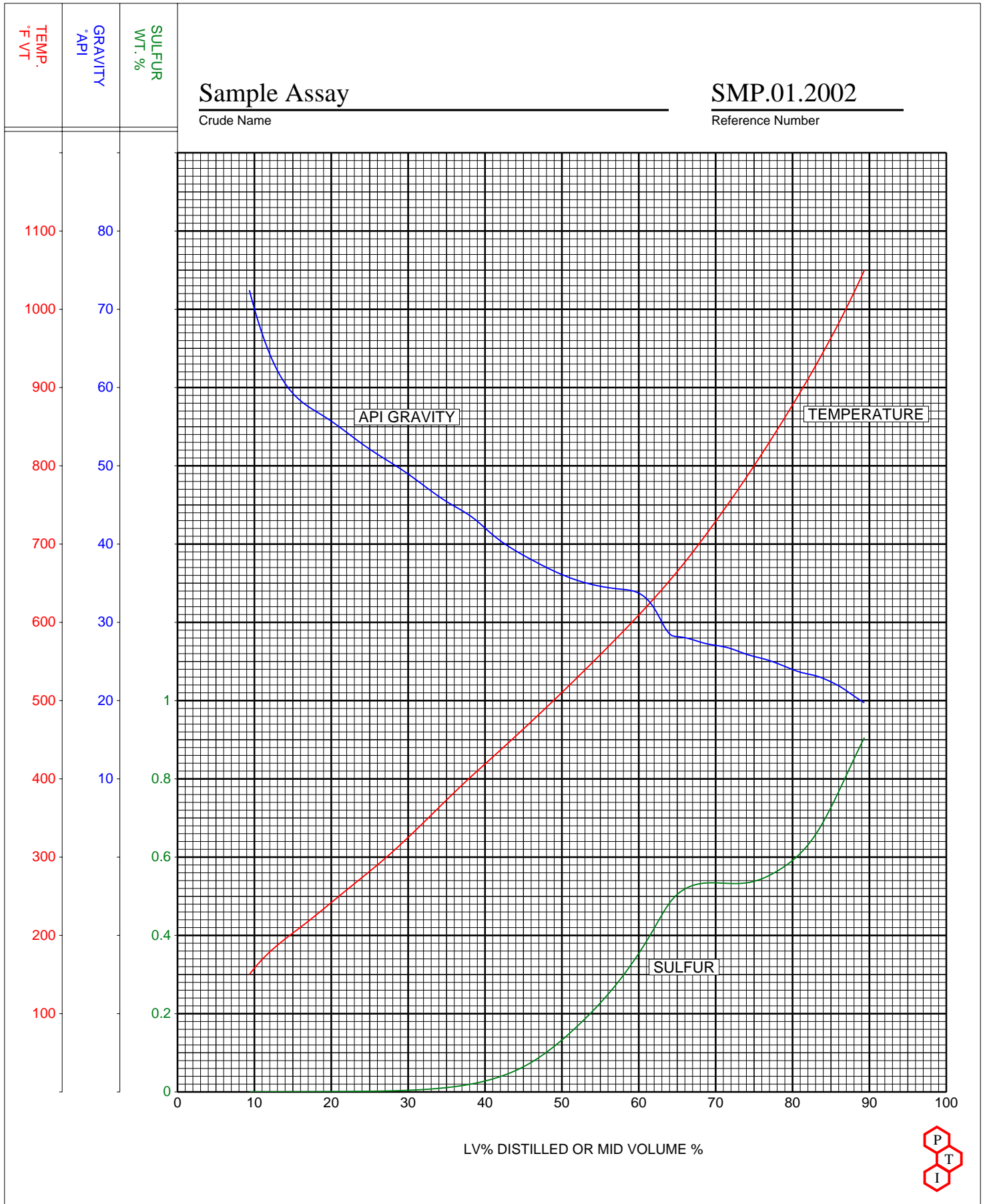
**SMP.01.2002**

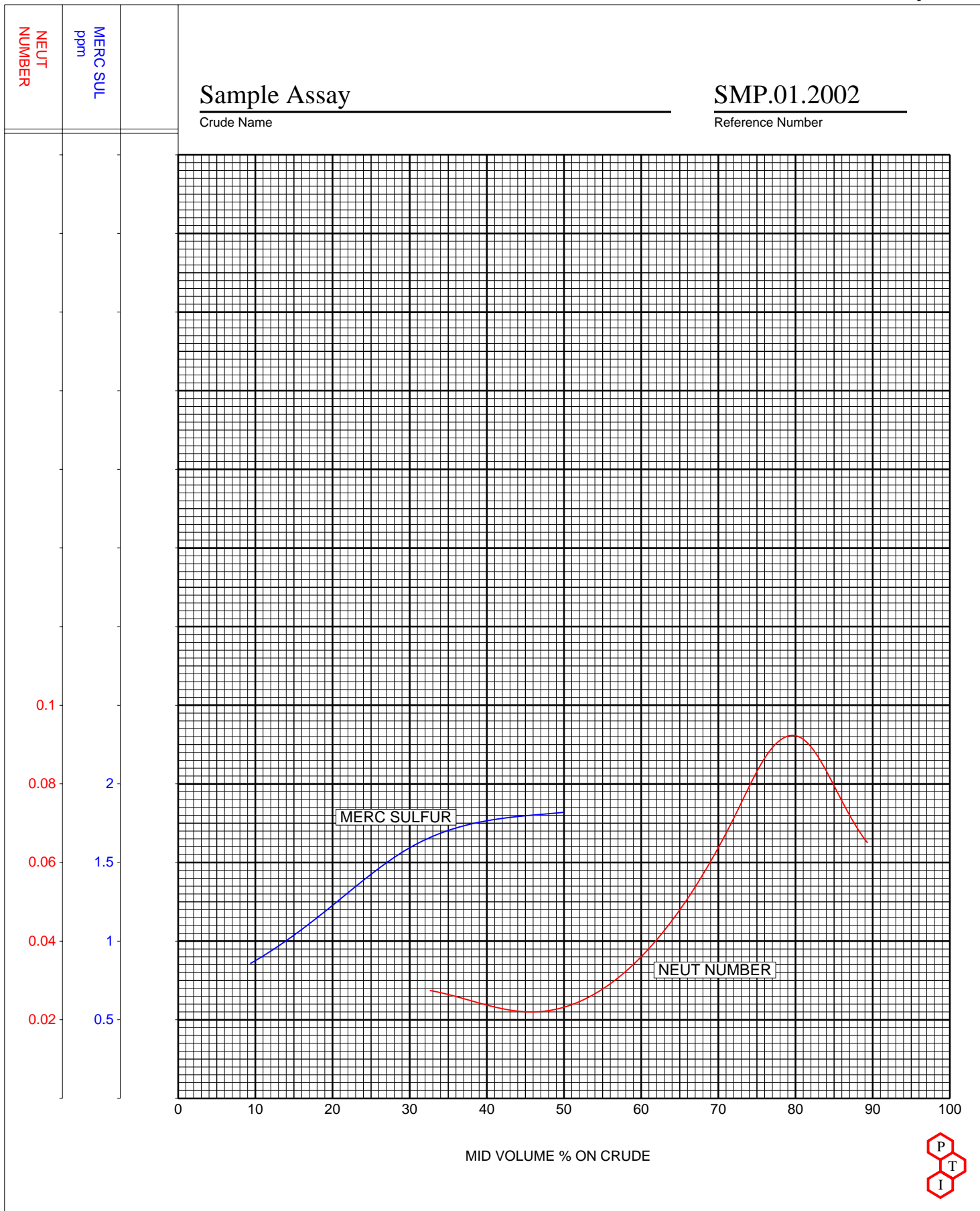
	<b>Deg C</b> <b>Deg F</b>	<b>325 +</b> <b>617 +</b>	<b>345 +</b> <b>653 +</b>	<b>400 +</b> <b>752 +</b>	<b>460 +</b> <b>860 +</b>	<b>505 +</b> <b>941 +</b>	<b>550 +</b> <b>1022 +</b>	<b>565+</b> <b>1049 +</b>
<b>Initial Yield</b>	Vol%	60.73	63.99	71.66	78.89	83.75	88.02	89.30
<b>Final Yield</b>	Vol%	100.00	100.00	100.00	100.00	100.00	100.00	100.00
<b>Cut Yield</b>	Vol%	39.27	36.01	28.34	21.11	16.25	11.98	10.70
<b>Initial Yield</b>	Wt%	56.32	59.74	67.96	75.81	81.15	85.89	87.34
<b>Final Yield</b>	Wt%	100.00	100.00	100.00	100.00	100.00	100.00	100.00
<b>Cut Yield</b>	Wt%	43.68	40.26	32.04	24.19	18.85	14.11	12.66
<b>Gravity</b>	API	21.8	21.0	19.3	17.3	15.5	13.3	12.5
<b>Specific Gravity</b>	60/60	0.9232	0.9280	0.9383	0.9512	0.9629	0.9772	0.9825
<b>Density @ 15C</b>	kg/dm3	0.9226	0.9274	0.9378	0.9506	0.9622	0.9766	0.9819
<b>K-Factor</b>		11.91	11.92	11.95	11.96	11.95	11.92	11.91
<b>Total Sulfur</b>	Wt%	0.79	0.82	0.89	1.01	1.12	1.23	1.27
<b>Total Nitrogen</b>	ppm	2193.8	2358.1	2819.5	3459.0	4111.2	4933.3	5250.9
<b>Basic Nitrogen</b>	ppm	610.5	652.8	771.4	933.6	1091.2	1279.5	1347.9
<b>Conradson C</b>	Wt%	4.31	4.68	5.87	7.77	9.92	13.01	14.30
<b>Ramsbottom C</b>	Wt%							
<b>Pent Insolubles</b>	Wt%							
<b>Asphaltenes</b>	Wt%	0.75	0.82	1.03	1.36	1.75	2.33	2.59
<b>Ash Content</b>	Wt%							
<b>Iron</b>	ppm	5.99	6.50	8.17	10.81	13.86	18.52	20.64
<b>Nickel</b>	ppm	2.49	2.70	3.38	4.48	5.75	7.66	8.52
<b>Vanadium</b>	ppm	13.22	14.36	18.03	23.87	30.61	40.90	45.55
<b>Sodium</b>	ppm	11.96	12.99	16.31	21.60	27.70	37.04	41.28
<b>Copper</b>	ppm							
<b>Total Acid No.</b>	mgKOH/g	0.09	0.09	0.10	0.10	0.10	0.11	0.12
<b>Pour Point</b>	Deg C	33.7	34.4	36.4	39.2	42.5	47.0	48.6
<b>Wax Content</b>	Wt%							
<b>Kinematic Vis.</b>	cSt							
<b>@ 40 C</b>	cSt	135.9	194.6	520.4	1685.2	5383	26773	51926
<b>@ 60 C</b>	cSt	50.59	67.81	152.66	407.55	1066.41	3970	6832
<b>@ 82 C</b>	cSt	21.99	27.86	54.04	123.12	273.7	790.7	1226.7
<b>@ 100 C</b>	cSt	13.05	16.04	28.63	58.39	115.76	289.18	421.79
<b>@ 135 C</b>	cSt	5.98	7.03	11.07	19.42	32.97	65.96	87.69
<b>Pen @</b>	dmm							
<b>Softening Point</b>	Deg C					38.9	42.9	44.2



# Distillates

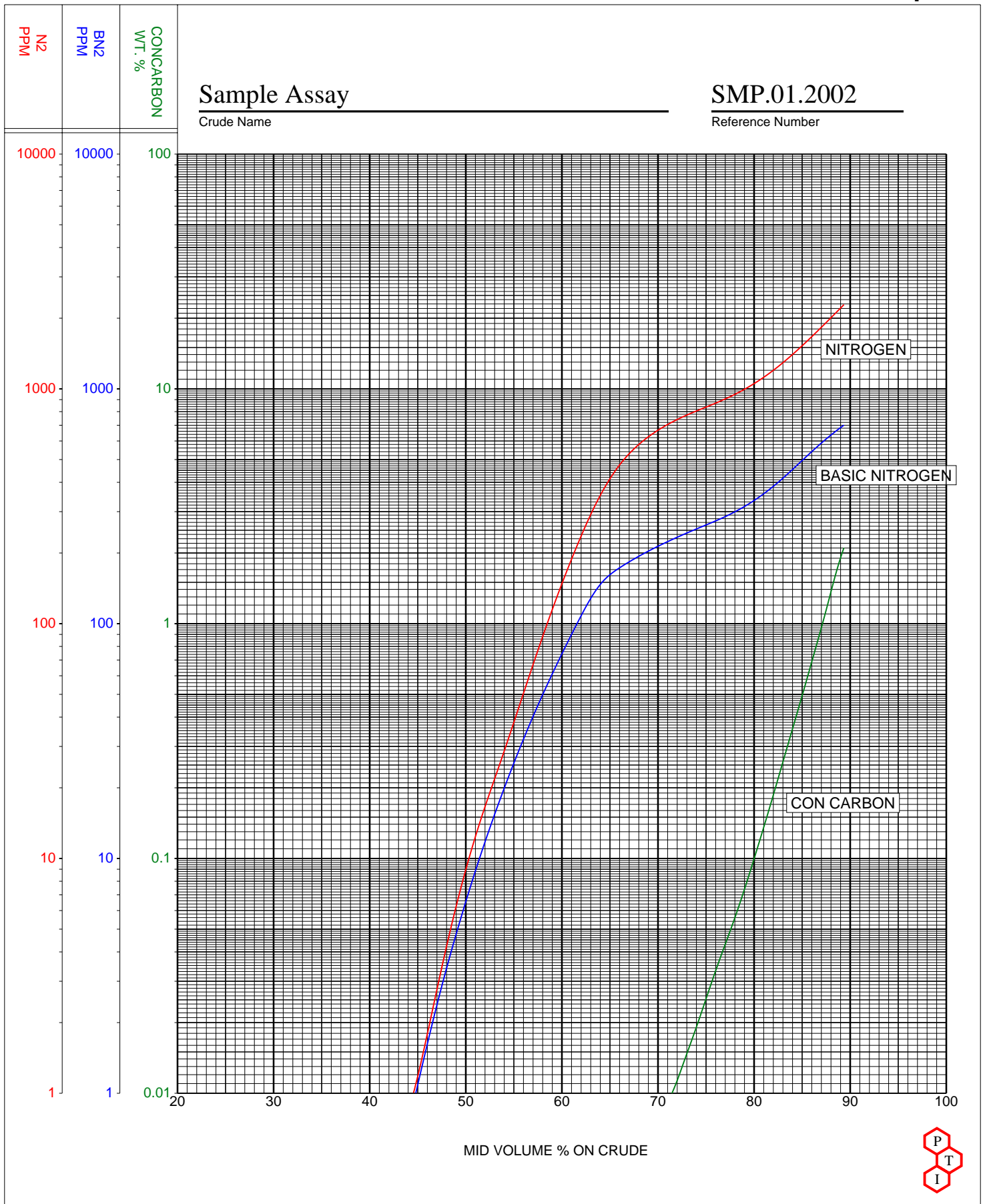
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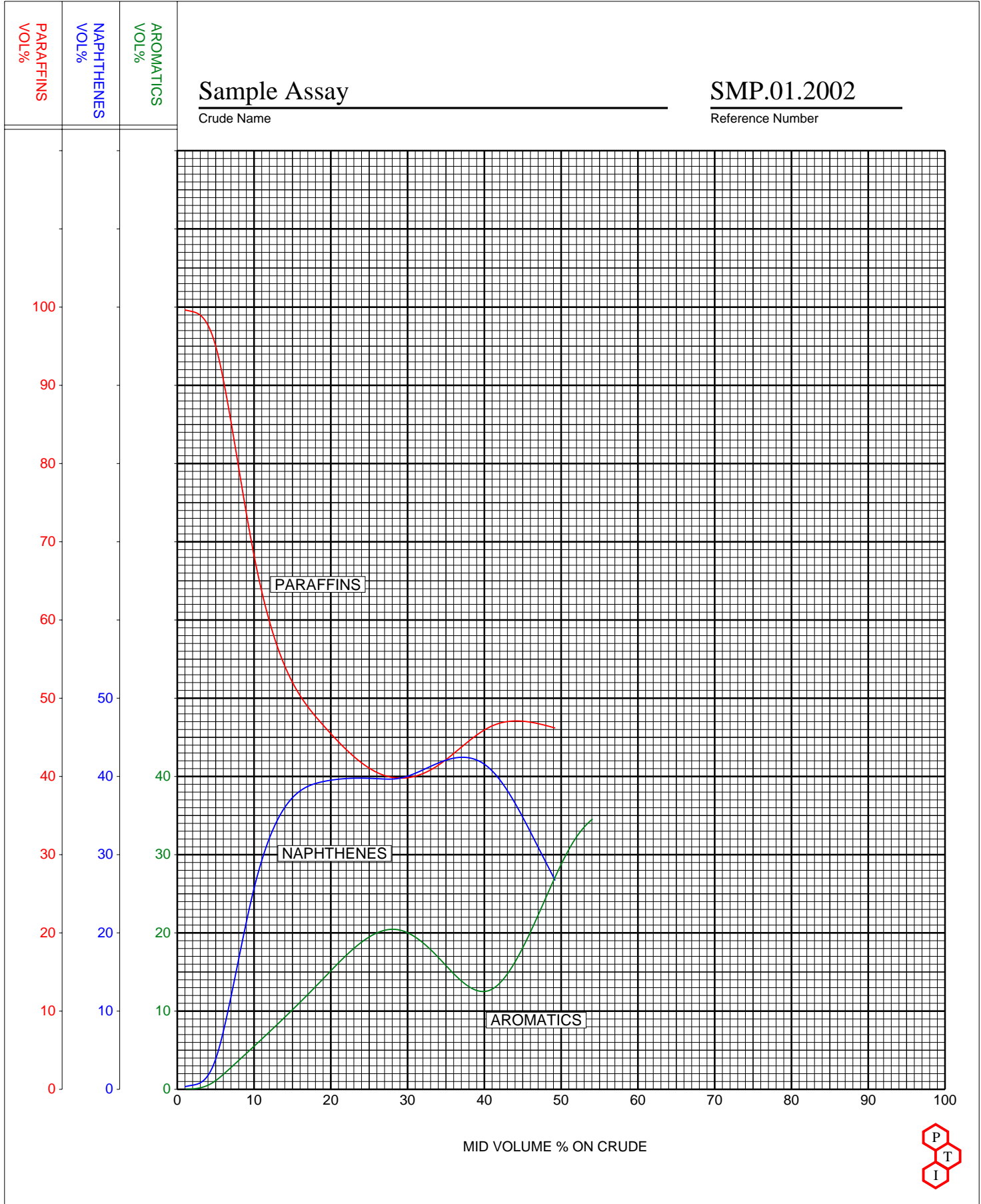


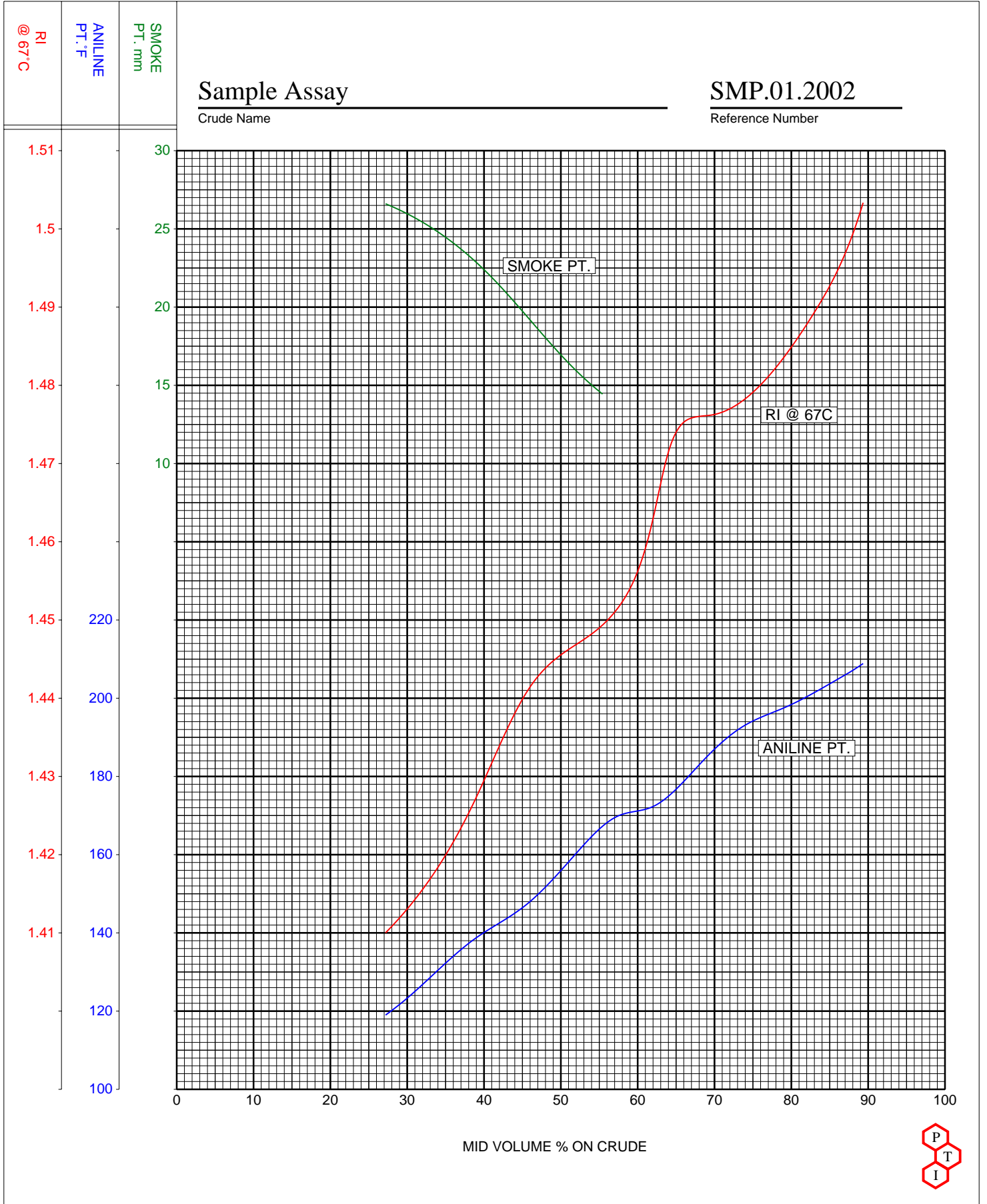


**Distillates**

**Graph 03**

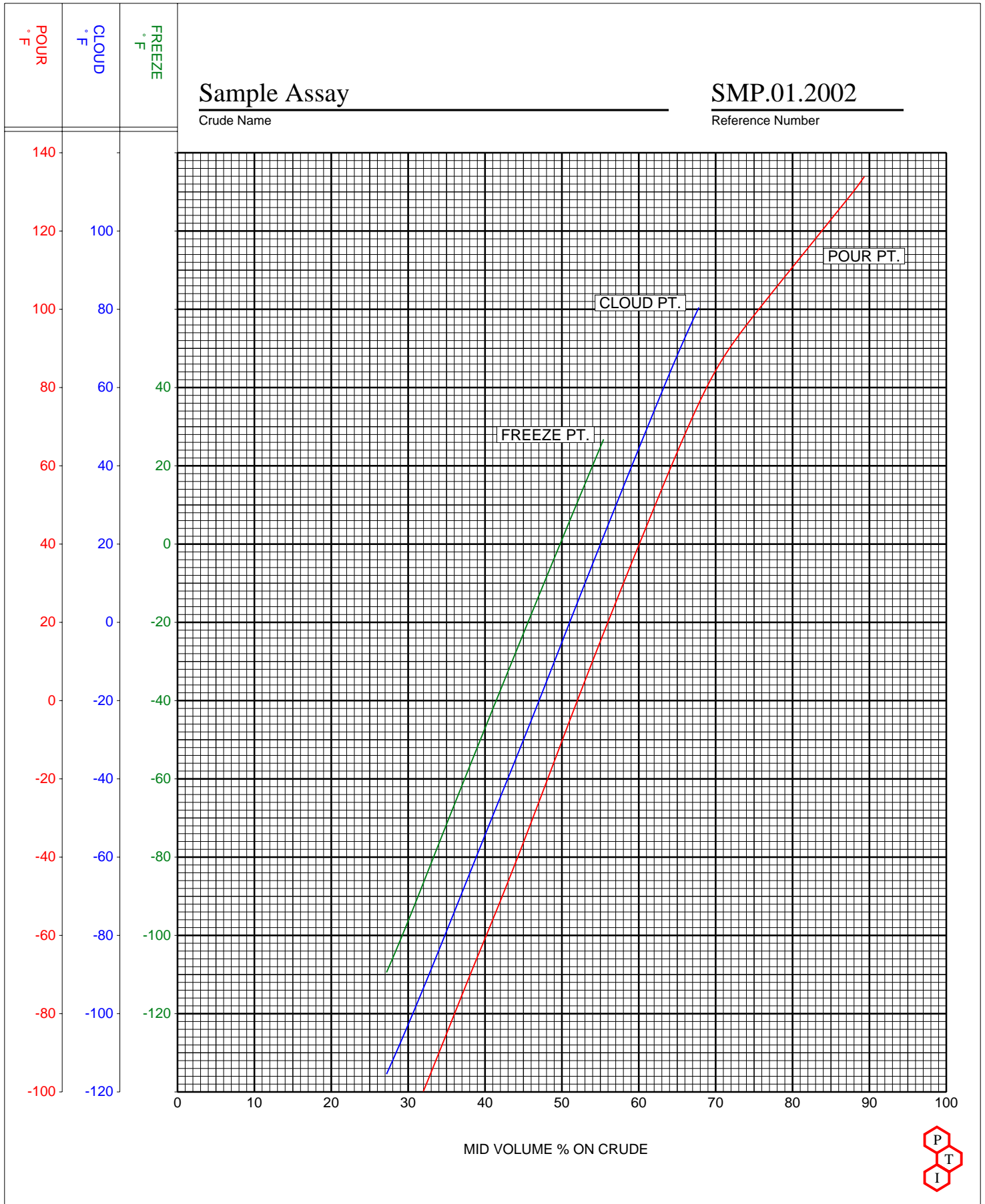


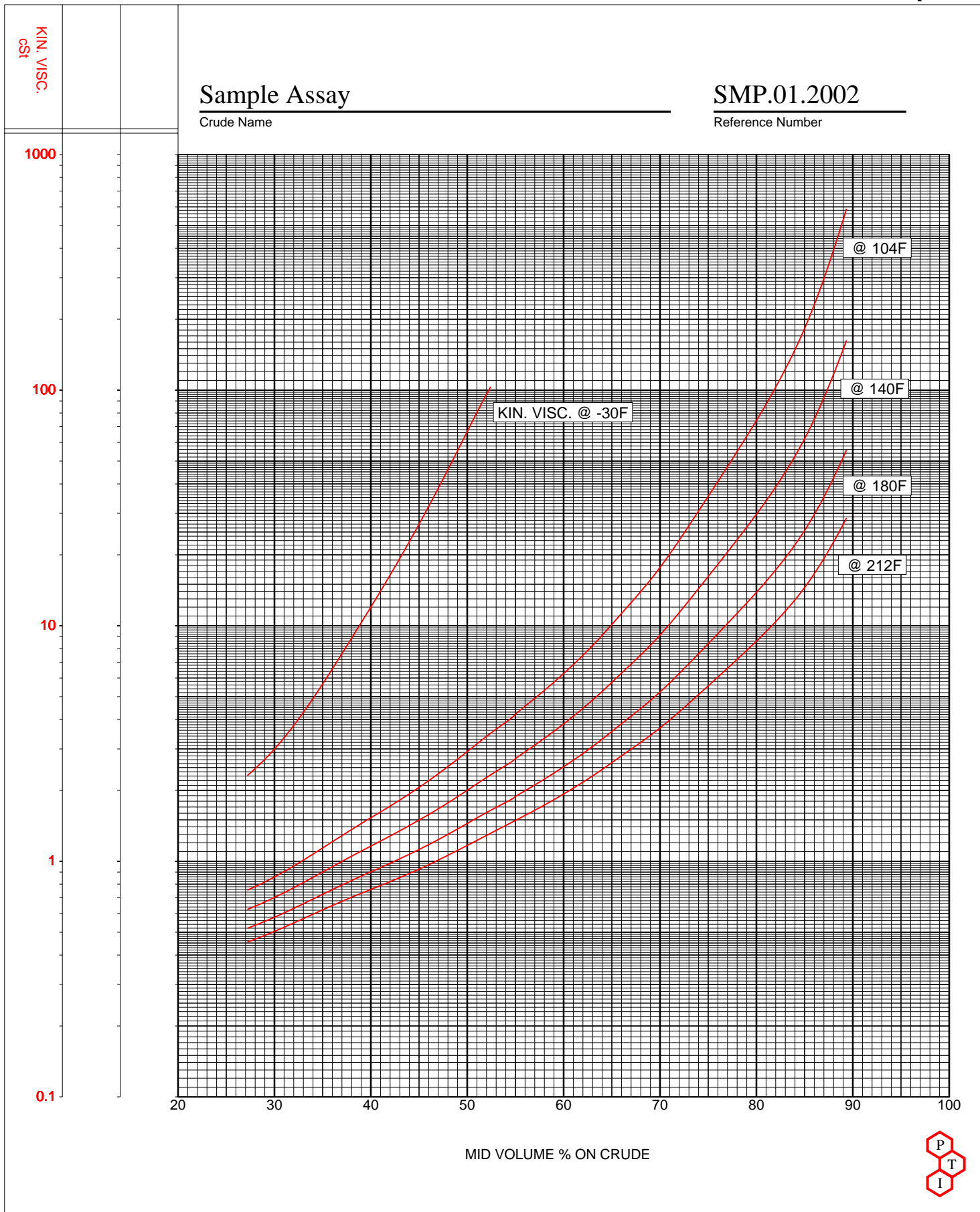


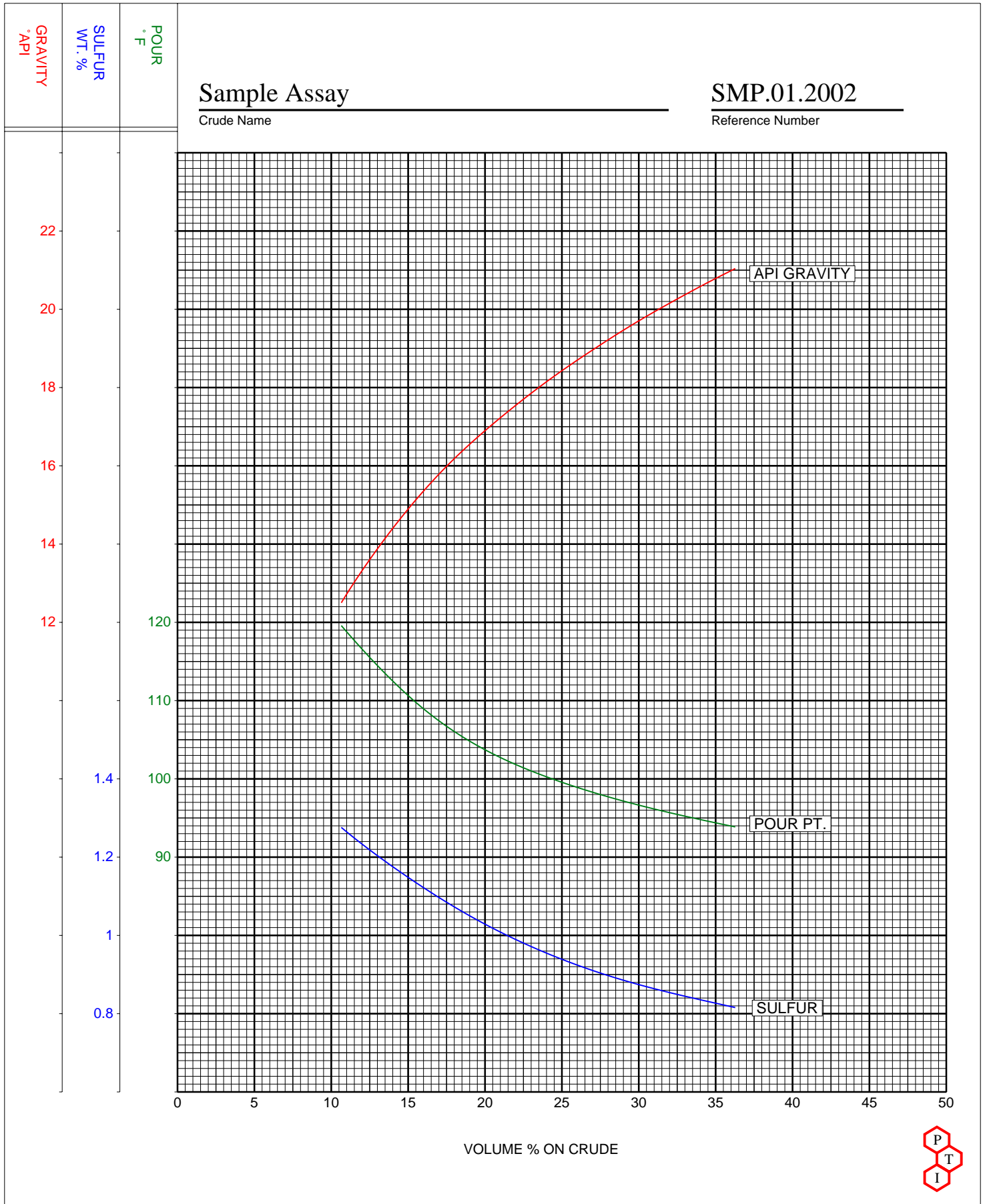


# Distillates

# Graph 06



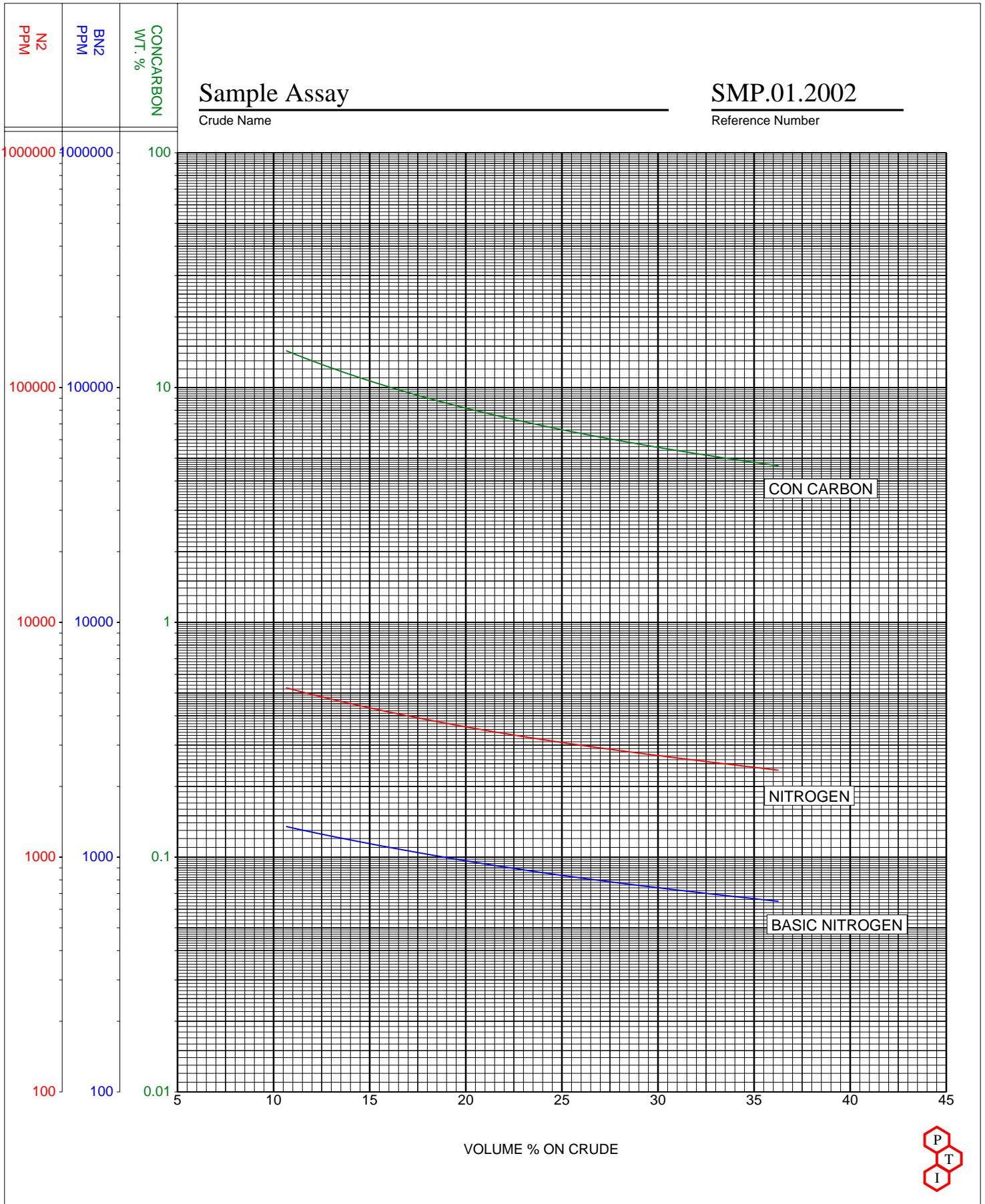






# Residua

# Graph 09



Sample Assay

Crude Name

SMP.01.2002

Reference Number

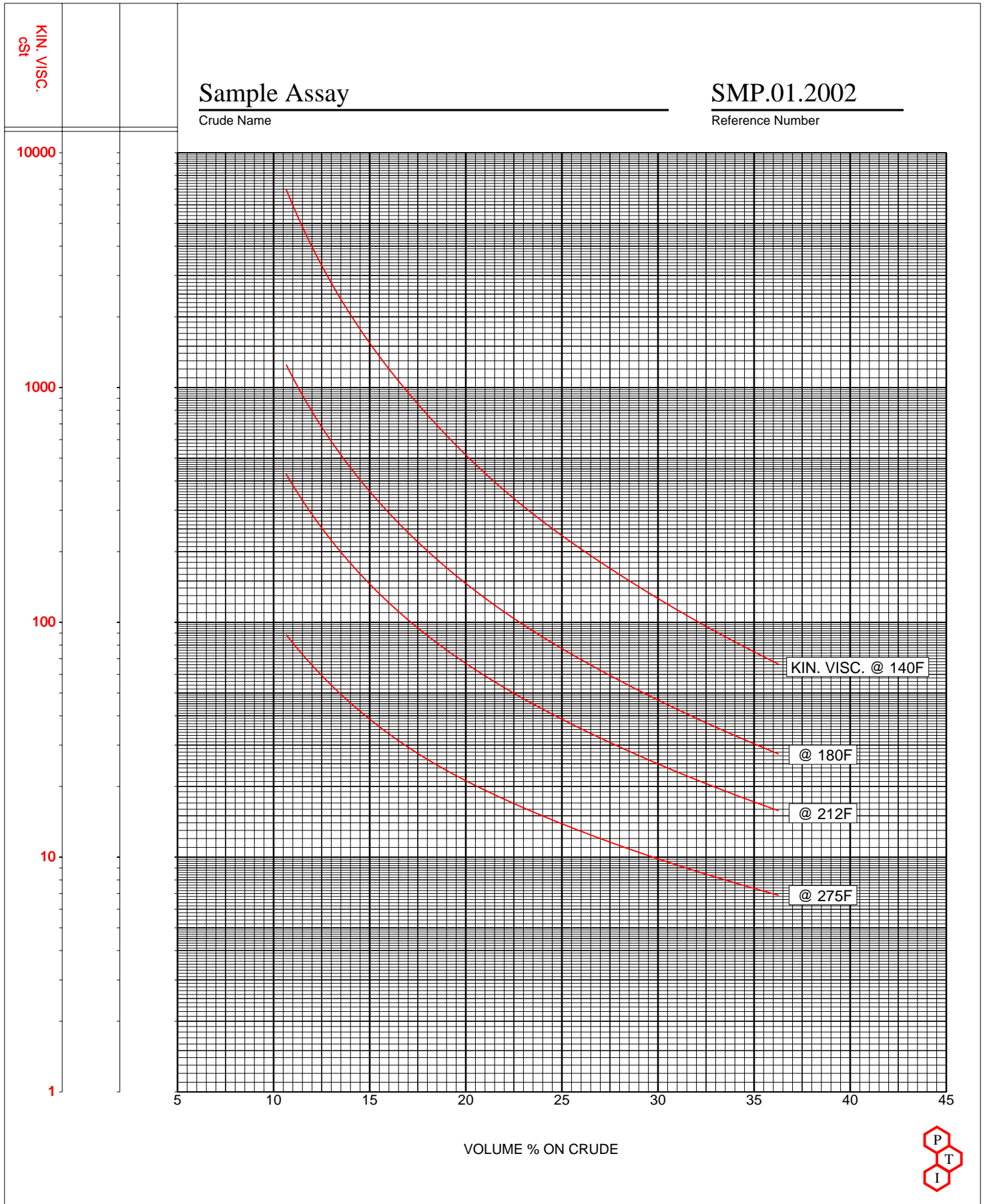
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VOLUME % ON CRUDE





# Residua

# Graph 11

