



# U. S. Oil & Refining Co.

3001 Marshall Avenue, Tacoma, Washington, 98421 (253) 383-1651

## Product Specification Vacuum Gas Oil

<u>Characteristic</u>	<u>ASTM Method</u>	<u>Typical Ranges</u>
Gravity, °API	D 4052	19.0 - 23.0
Distillation - °C (°F)	D 1160	
Initial Boiling Point		255 - 300 (490 - 570)
10% recovered		343 - 393 (650 - 740)
50% recovered		438 - 465 (820 - 870)
90% recovered		500 - 560 (940 - 1040)
End Point		527 - 582 (980 - 1080)
Flash Point, °C (°F)	D 93B	150-190 (300 - 374)
Pour Point, °C (°F)	D 5950	12 - 33 (54 - 91)
Viscosity @50°C, mm <sup>2</sup> /s	D 7042	30 - 60
Sulfur, mass %	D 4294	1.0 - 1.5
Carbon, mass %	D 4530	0.1 - 0.4
BS&W, volume %	D 96	ND <sup>2</sup> - 0.1
Aniline Point, °C (°F)	D 611	74 - 81 (165 - 178)
Asphaltenes, mass %	D 6560	ND <sup>2</sup> - 0.2
Total Nitrogen, ppm	D 4629	1200 - 1700
Vanadium, ppm	IP 501	ND <sup>2</sup> - 0.5
Nickel	IP 501	ND <sup>2</sup> - 0.5
Copper	IP 501	ND <sup>2</sup> - 0.2
Lead	IP 501	ND <sup>2</sup> - 0.2
Sodium	IP 501	ND <sup>2</sup> - 2.0
Iron	IP 501	0.5 - 1.0
Calcium	IP 501	ND <sup>2</sup> - 0.5
Hydrogen Sulfide, ppm	D 5705	ND <sup>2</sup> - 100

- 1) reserved
- 2) Not Detectable