



HYDROCAL™

NAPHTHENIC BASE OILS

HYDROCAL naphthenic base stocks are produced exclusively by Calumet using a multi-stage hydrotreating process operating at pressures above 2500 psi. This process offers the unique ability that currently meets established and future performance standards.

- More than 30 years of history manufacturing naphthenic base stocks
- Broad range of viscosities available from 38 SUS @ 100 °F to Bright Stock
- All HYDROCAL products pass the IP346 Standard
- Meets FDA 21 CFR 178.3620(c) requirements

Calumet Specialty Products Partners, L.P. produces naphthenic base oils by using a multi-stage hydrotreating process operating at pressures above 2500 psi. This process offers the unique ability to produce naphthenic base stocks that meet currently established performance standards.

The HYDROCAL refining process selectively saturates large cyclical aromatic subgroups which result in the production of very high-quality, stable base stocks. The HYDROCAL product line passes the IP346 Standard and does not require labeling as carcinogenic under the OSHA Hazard Communication Standard. Further quality control practices that Calumet implements on crude oil selection and subsequent refining processes assure consistent uniformity and product performance.

APPLICATIONS

- Metalworking Fluids
- Heat Transfer Fluids
- Hydraulic Oils
- Compressor Oils
- Gear Oils
- Aviation Hydraulic Fluids
- Cutting Oils
- Greases
- Automatic Transmission Fluids



TYPICAL PROPERTIES

PHYSICAL PROPERTIES*	METHOD	38	45	60	100	500	750	1200	2400
Viscosity@ 100 °F (SUS)	D2161	37.5	44.9	62.9	109.3	510.3	765.1	1227.1	2411.1
Viscosity @ 210 °F (SUS)	D2161	30.3	31.9	34.6	38.7	56.3	64.6	79.3	99.6
Viscosity @ 40 °C (cSt)	D445	3.3	5.5	10.3	20.6	96.4	143.2	227.6	440.4
Viscosity @ 100 °C (cSt)	D445	1.3	1.7	2.5	3.7	8.9	11.1	14.8	21.8
Viscosity Index	D2270	85	65	39	20	48	43	44	43
API Gravity @ 60 °F	D4052	29.8	28.0	27.1	25.7	24.7	23.7	23.2	22.2
Flash Point, COC (°F)	D92	219	265	317	329	429	438	471	481
Pour Point (°F)	D97	-81	-81	-78	-64	-21	-15	-11	10
Color, ASTM	D1500	L0.5	L0.5	L0.5	L0.5	1.0	1.0	L1.5	L2.0
Aniline Point (°F)	D611	138.6	149.0	162.8	175.3	206.8	207.6	213.4	217.7
Aniline Point (°C)	D611	59.2	65.0	72.7	80.3	97.1	97.5	100.8	103.2
Neut. No (mg KOH/g)	D974	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sulfur (Wt.%)	D4294	0.0024	0.0054	0.0078	0.0210	0.0025	0.0228	0.0698	0.0715
Refractive Index @ 20 °C	D1218	1.4768	1.4837	1.4899	1.4910	1.4924	1.4999	1.5012	1.5041
Clay Gel (Wt.%)	D2007								
Asphaltenes		0	0	0	0	0	0	-	0
Polar Compounds		0	0	0	0	0	0	-	2
Aromatics		25	31	32	24	18	26	-	32
Saturates		75	69	68	76	82	74	-	66
Carbon Type Analysis (%)	D2140								
Ca		-	9	13	8	3	10	10	9
Cn		-	51	40	47	47	36	36	36
Cp		-	40	47	45	50	54	54	55
FDA 21 CFR 178.3620 (c)		-	PASS	PASS	PASS	PASS	PASS	PASS	PASS

*All product specifications are typical values, unless otherwise noted.

TECHNICAL ASSISTANCE

For product or technical questions, contact your Sales Representative or Calumet Product Support at (800) 437-3188 or email technical@clmt.com.

Calumet's sampling and testing procedures in effect at the time of production will be used for certification testing. Results may be based on tank certification, manufacturing data, periodic testing and/or most recent product restock. Typical values only represent the values one would expect if the property were tested in our laboratories with our test methods on the specified date. Some product properties are not frequently measured, and accordingly typical values are not based on a statistically relevant number of tests. The information in this document relates only to the named product. The user is solely responsible for all determination regarding any use and any process.



CORPORATE HEADQUARTERS

2780 Waterfront Pkwy, E. Drive • Indianapolis, IN 46214
 Calumet.com • 800.437.3188 • 317.328.5660

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CUSTOMER SUPPORT
customerservice@clmt.com

PRODUCT SUPPORT
technical@clmt.com

SALES INQUIRIES
sales@clmt.com