

NAPHTHENIC BASE OILS

HYDROCAL™

**Consistent Refinement,
Unsurpassed Performance**

Calumet refineries have over 90 years of experience manufacturing Naphthenic base oils. Our extensive product line of Naphthenic based stocks are engineered to meet numerous requirements.

www.calumetspecialty.com



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Rev. 11/20

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HYDROCAL™

**HYDROCAL™ Naphthenic
Base Stocks by Calumet**

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 IP 346 Standard and do 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.



WHO WE ARE

**Calumet Has Over 90 Years of Experience
Producing Specialty Naphthenic Base Stocks**



Specialized Expertise

With over 90 years of experience producing high-quality base oils, we've honed the craft of consistent, quality production.



Cost-Effective Supplier

Our centrally located base oil refineries and blending/distribution terminals offer convenient rail and truck access.



Forward Thinking

Ongoing investments support new product development, operational excellence and ISO-9000 quality-related initiatives.



Formulation Flexibility

With nearly 600 unique base oil products, our product portfolio offers a wide range of viscosity and solvency characteristics.



Proven Partner

Calumet base oils are used by top companies and well-known brands across the globe.



Research & Development

Our network of leading R&D and technical expertise is integrated into the development and support of every product we produce.



WE SUPPLY INDUSTRY

HYDROCAL™ is Ideal Across a Broad Range of Industrial Applications



HYDROCAL APPLICATIONS

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

And Many More ...



HYDROCAL™ Typical Properties

HYDROCAL™ Base Stocks are Available in a Wide-Range of Viscosities to Meet Your Specific Application

Physical Properties*	ASTM Method	38	45	60	100	500	750	1200	2400
Viscosity, SUS @ 100°F	D2161	37.5	44.9	62.9	109.3	510.3	765.1	1227.1	2411.1
Viscosity, SUS @ 210°F	D2161	30.3	31.9	34.6	38.7	56.3	64.6	79.3	99.6
Viscosity, cSt @ 40°C	D445	3.3	5.5	10.3	20.6	96.4	143.2	227.6	440.4
Viscosity, cSt @ 100°C	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	D1500	L0.5	L0.5	L0.5	L0.5	1.0	1.0	L1.5	L2.0
Aniline Point, °F	D611	138.6	149	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	0.021	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	0.0	0.0	0.0		0.0
Polar Compounds		0.0	0.0	0.0	0.0	0.0	0.3		1.9
Aromatics		25.0	31.0	32.2	23.7	18.4	25.7		32.3
Saturates		75.0	69.0	67.8	76.3	81.6	74.0		65.8
Carbon Type Anaylsis, %	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.

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.

**For Product or Technical Questions Contact Your
Sales Representative or Calumet Product Support**

**1-800-437-3188
technical@clmt.com**

www.calumetspecialty.com

SHIPPING LOCATIONS

Burnham, Illinois
Dickinson, Texas
Karns City, Pennsylvania
Princeton, Louisiana