



CALPRO™

HYBRID PROCESS OILS

Calumet produces a full line of purpose blended naphthenic and paraffinic oils. The CALPRO products are a custom combination formulated and optimized to achieve unique properties for customer specific requirements.

Below you will find a few representative products of custom CALPRO formulations made for customers in various industries.

PROPERTIES	METHOD	CALPRO 36	CALPRO 60	CALPRO 100	CALPRO 150	CALPRO 200	CALPRO 500
Viscosity @ 40 °C (cSt)	D445	2.81	10.12	20.16	29.16	41.92	97
Viscosity @ 100 °C (cSt)	D445	N/A	2.50	3.85	4.94	6.13	9.67
Viscosity @ 100 °F (SUS)	D2161	35.8	62.0	106.6	150.9	216.6	508.9
Viscosity @ 210 °F (SUS)	D2161	29.9	34.7	39.2	42.8	46.8	59.1
Viscosity Index)	D2270	N/A	56	65	88	88	70
API Gravity @ 60 °F	D4052	31.4	29.7	29.5	30.2	30.5	26.4
Flash Point, COC (°F)	D92	226	317	353	393	434	233
Flash Point, COC (°C)	D92	108	158	178	201	223	452
Pour Point (°F)	D97	-90	-71	-13	0	0	3
Pour Point (°C)	D97	-68	-58	-25	-18	-18	-16
Color, ASTM	D1500	L0.5	L0.5	L0.5	L0.5	L0.5	L1.0
Aniline Point (°F)	D611	102	176.5	198.9	214.2	223.6	220.3
Aniline Point (°C)	D611	101.3	80.3	92.8	101.2	106.4	104.6
Refractive Index @ 20 °C	D1218	–	1.4812	–	–	1.478	1.4897

APPLICATIONS

- Metalworking Fluids
- Polymers
- Elastomers
- Rubber Compounds
- Tires
- Plastics
- PVC
- Defoamers
- Textiles
- Cable Fillers
- Adhesives
- Sealants
- Explosives
- Inks
- Paints and Coatings
- Leather Chemicals
- Battery Separators



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*** Formulation blending requests are subject to product availability and evaluation. Minimum order quantities as well as manufacturing location may determine the accessibility of product.

▲ CASE STUDIES

CALPRO products are unique hybrid process oils that are formulated to achieve individualized and specialty customer specifications. CALPRO oils utilize premium base stocks to achieve balanced performance and are well suited for applications where typical process oils cannot achieve specialized formulation requirements. In our example, we custom blend to specifications where we alter components to target specifications. Below you will find two different case studies where we blended our products (actual Calumet product names are hidden) to achieve customer specific requirements.

OPPORTUNITY

An adhesive manufacturer required a process oil with high solvency for their formulated product. A process oil with a low aniline point has high aromaticity and this translates to high solvency. The adhesive manufacturers' process also requires a high flash point. Low aniline point and high flash point are not mutually exclusive because high aromatic content lowers both the aniline point and the flash point of an oil.

SOLUTION

Naphthenic oils have excellent solvency properties, whereas paraffinic oils have higher flash points. CALPRO 100 was formulated as a specialty process oil and is comprised of both naphthenic and paraffinic molecules to balance high solvency (low aniline point) and higher flash point.

PROPERTIES	METHOD	Product #1 (Naphthenic)	Product #2 (Paraffinic)	CALPRO 100
Flash Point, COC (°F)	D92	300	440	435
Aniline Point (°F)	D611	166	216	199

OPPORTUNITY

A specialty automotive supplier's product requires a rubber compound with exceptional oxidative stability and color stability. Additionally, the type of elastomer for the automotive supplier's product requires a process oil with exceptionally high solvency. High solvency and oil loading capability for a process oil are measured by viscosity-gravity constant (VGC). VGC is a mathematical relationship between viscosity and relative density, and it is regarded as the best guide to an oil's aromaticity. High VGC, or aromaticity, is needed for applications with high solvency and oil loading capability.

SOLUTION

Typically, paraffinic process oils are better suited than naphthenic oils for applications with high oxidation and color stability, however, naphthenic oils have high VGC and paraffinic oils have low VGC. For this application, high oxidative and color stability were competing with high solvency (VGC). Calumet formulated another version of CALPRO 150 using a different combination of paraffinic oil (product #1) and naphthenic oil (product #2) for the specialty adhesive application. By blending a higher concentration of the paraffinic product, a higher oxidation stability was achieved. This version of CALPRO 150 possesses both high oxidation and color stability and a high VGC required for the automotive suppliers' specialty elastomer.

PROPERTIES	METHOD	Product #1 (Naphthenic)	Product #2 (Paraffinic)	CALPRO 150
Viscosity-Gravity Constant	D2501	0.871	0.807	0.824

▲ TECHNICAL ASSISTANCE

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

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