



## CALSOL™ PROCESS OILS

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

CALSOL specialty process oils are refined from a select blend of crude oil using a state-of-the-art, multistage hydrogenation process. This severe hydrotreating process offers the unique ability to produce specialty process oils that meet currently established performance standards for a variety of applications. The quality control practices that Calumet implements regarding crude oil selection and subsequent refining processes ensure consistent uniformity and product performance.

### **CALSOL 5 Series** NON-STAINING NAPHTHENIC PROCESS OILS

When the highest levels of color stability, oxidation and aging resistance are required, the CALSOL 5 Series is simply the “Best of the Best.”

- Low Aromatic Levels
- Very Low Polar Compound Levels
- Extremely Low UV Absorptivity Values

The CALSOL 5 Series is an ideal choice whenever the balance of hardness and color stability is critical. For example: thermoplastics, radial and styrene elastomers.

### **CALSOL 8 Series** HIGH VISCOSITY-GRAVITY CONSTANT (VGC) PROCESS OILS

Offering color stability, elastomer compatibility, and strong process characteristics, the CALSOL 8 Series aligns with current industry standards and provides optimum compatibility and performance in elastomeric rubber applications.

- High VGC levels
- Low Aniline Points
- Very Low Polar Compound Levels

The CALSOL 8 Series is available in a wide range of viscosities and exhibit the balance of properties that also make them the preferred choice for non-rubber applications such as resin extending, PVC, textiles, and caulking compounds.

### **CALSOL P9 Series** HIGHLY-REFINED PARAFFINIC PROCESS OILS

Providing excellent color stability without sacrificing elastomer compatibility and process characteristics, the CALSOL P9 Series is aligned to current elastomeric rubber industry standards.

- Low Volatility
- Moderate Aniline Points
- Very Low Polar Compound Levels

The CALSOL P9 Series is available in a wide range of viscosities and exhibit the balance of properties that also make them the preferred choice for non-rubber applications such as EPDM Compounding, PVC, textiles, and caulking compounds.



# CALSOL 5 SERIES

Nonstaining Naphthenic Oils

# CALSOL P9 SERIES

Highly Refined Paraffinic Process Oils

Physical Properties*	ASTM Method	CALSOL 5 Series		CALSOL P9 Series					
		5550	5160S	P904	P910	P915	P930	P960	P9250
Viscosity @ 40 °C (cSt)	D445	97.1	283.4	4.0	20.1	30.4	63.9	122.6	492.0
Viscosity @ 100 °C (cSt)	D445	9.0	17.0	1.5	4.1	5.3	8.3	12.6	31.7
Viscosity @ 100 °F (SUS)	D2161	514.4	1539.3	39.9	105.7	156.6	331.1	642.5	2641.2
Viscosity @ 210 °F (SUS)	D2161	56.8	88.3	31.0	39.9	43.7	54.1	70.0	155.4
API Gravity @ 60 °F	D4052	25.2	23.2	36.8	33.5	32.3	30.3	29.0	27.0
Specific Gravity @ 60 °F	D1250	0.9029	0.9146	0.8408	0.8575	0.8638	0.8745	0.8816	0.8927
Viscosity-Gravity Constant	D2501	0.840	0.838	0.833	0.809	0.810	0.809	0.809	0.799
Density (Pounds per Gallon)	D1250	7.529	7.626	7.014	7.150	7.202	7.282	7.341	7.443
Molecular Weight	D2502	420	495	210	365	400	470	535	695
Pour Point (°F)	D97	-36	-16	-85	5	5	10	13	20
Color, ASTM	D1500	L0.5	L1.0	L0.5	1	L1.0	L1.5	2.0	L3.5
UV Absorptivity @ 260 nm	D2008	0.5	1.7	0.1	0.1	0.4	0.3	0.6	0.8
Volatility @ 225 °F (Wt.%)	D972	0.3	0.1	50.6	2.1	0.4	0.3	0.1	0.1
Flash Point, COC (°F)	D92	438	499	280	402	436	465	503	598
Refractive Index @ 20 °C	D1218	1.4918	1.4999	1.4609	1.4698	1.4747	1.4786	1.4834	1.4892
Aniline Point (°F)	D611	209.5	217.8	176.0	220.7	223.9	240.6	248.2	269.6
Clay-Gel (Wt.%)	D2007								
Asphaltenes		0	0	0	0	0	0	0	0
Polar Compounds		0	0	-	0	0	0	0	2
Aromatics		18	21	-	9	8	7	11	28
Saturates		82	79	93	91	92	93	88	70
Carbon Type Analysis (%)	D2140								
Ca		4	7	2	0	3	0	2	1
Cn		44	38	43	36	31	35	31	29
Cp		52	55	55	64	66	65	63	70
FDA 21 CFR 178.3620 (c)	FDA	PASS	PASS	-	PASS	PASS	-	-	-

# OIL SELECTION GUIDE

## CALSOL Specialty Process Oil and Extender Oils

Compounding Polymer	APPLICATION OBJECTIVE					
	General Purpose	Maximum	Maximum Color Stability	Maximum Volatility	Low Temp Flexibility	High Temp Resistance
Butyl (IIR)	P910 thru P9250**, 5550 thru 5160S**	P910	P190 5550	P9250 5260S	P910	P9250 5160S
Ethylene Propylene (EPR) (EPM)	P910 thru P9250**, 5550	P910 5550	P910 P950** 5550	P9250 5160S	P910	P9250
Ethylene Propylene Diene (EPT) (EPDM)	P910 thru P9250**, 5550 thru 5160S**, 810 thru 8240**	P910, 810 thru 8240**	P910 5550	P9250 5260S	P910	P9250 5160S
Natural (NR)	P910 thru P9250**	P910 510	P910 5550	P9250 5260S	P910	P9250 5160S
Neoprene Polychloroprene (CR)	810 thru 8240**, 5550 thru 5160S**	See Max Oil Loading (PHR) Table	5550	8240	510	8240
Polyisoprene (IR)	P910 thru P9250**, 5550 thru 5160S**	P910 510	P910 5550	P9250 5260S	P910	P9250 5160S
Polybutadiene (BR)	P910, P950, 5550 thru 5160S**, 810 thru 8240**	510 810	5550	5160S 8240	P910	5160S 8240
Styrene-Butadiene (SBR)	P950, 810 thru 8240**	810	P910 5550	5160S 8240	P910	8240
Thermoplastic, Styrenic (SBS) (YSBR) (SIS) (SEBS)	P910, P9250**, 5550 thru 5160S**	510 thru 5160**	5550	P9250 5260S	P910	P9250 5160S
Thermoplastic, Olefinic	5550 thru 5160S**	P910, P9510**, 5550 thru 5160S**	5550	P9250	P910	P950 P9250

\*\*Specific grade used depends on volatility requirements

Maximum Oil Loading (PHR) for Various Neoprenes				
Grade	GNA	W	WHV	T
CALSOL 510	15	25	22	25
CALSOL 810	20	30	22	30
CALSOL 8240	20	22	22	25

### OSHA Hazardous Communication Status

CALSOL specialty process oils do not require labeling as carcinogenic under the OSHA Hazard Communication Standard.

### FDA Status

CALSOL specialty process oils meet requirements of FDA 21 CFR 178.3620(c)

## TECHNICAL ASSISTANCE

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

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