



PETROCHEM
CARLESS

Process Oils

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Brisol™ and **Brisopar™** speciality process oils are produced from specifically selected feedstocks and refining processes and are designed to provide consistent, reliable performance in each application.

	ASTM	BRISOPAR™				BRISOL™							
		PARAFFINIC				NAPHTHENIC				AROMATIC			
		40	55	110	300	181	179	303	315	475	485	490	495
Density @15°C gcm ³	D1298	0.863	0.870	0.883	0.903	0.878	0.896	0.902	0.924	1.0095	1.020	1.009	0.989
Viscosity @ 40°C mm ² /s	D445	21.1	31.2	93.5	490	7.9	31.0	23	372	415	520	1600	5230
Viscosity @ 100°C mm ² /s	D445	4.3	5.0	11.3	31.3	2.2	4.5	3.7	18.6	16.5	24.8	33.0	74.6
Flash Point PMCC °C	D93	195	215	240	288	144	186	178	248	220	227	262	251
Pour Point °C	D97	-12	-15	-12	-9	-55	-39	-42	-18	9	15	21	21
Aniline Point °C	D611	98	99	109	120	81	97	83	90	19	21	37	70
Colour	D1500	0.5	0.5	1.5	4.0	0.5	0.5	0.5	1.5	D8	D8	D8	D8
Refractive Index @ 20°C	D1218	1.474	1.480	1.487	1.496	1.473	1.481	1.494	1.5133	1.5731	1.5698	1.5	1.5571
V.G.C	D2501	0.814	0.818	0.815	0.819	0.843	0.828	0.859	0.861	0.972	0.970	0.945	0.927
Sulphur % wt	D2622	0.4	0.4	0.6	0.9	0.04	0.01	0.03	0.08	4.5	4.4	4.0	3.8
Carbon Analysis CA %	D2140	3	3	2	6	6	10	15	15	39	38	32	33
Carbon Analysis CN %	D2140	33	36	36	29	53	48	43	34	19	19	33	12
Carbon Analysis CP %	D2140	64	61	62	65	41	42	42	51	42	43	35	55
Volatility 22hrs @ 107°C	D972	1.0	0.8	0.2	0.1	30	4	6	0.1	1.0	0.8	0.3	—
Volatility 3hrs @ 163°C	D972	0.3	0.2	0.1	0.1	—	—	—	—	0.4	0.05	0.02	0.01

The characteristics above are typical production values, and do not constitute a specification.

Petrochem Carless is a leading supplier of speciality process oils and produces a comprehensive range of products used in many areas of manufacturing.

Industry issues

Petrochem Carless **Brisol** and **Brisopar** speciality process oils are strategic raw materials used in many industry sectors. Their applications are typically grouped by the function they perform such as; processing aids, product extruders, carriers / diluents, surface-active agents and water-repellents.

Oil properties

Process oils are extremely complex mixtures of aromatic, naphthenic and paraffinic hydrocarbons. Low levels of nitrogen, oxygen and heterocyclic sulphur compounds are also present, which makes exhaustive chemical analysis impossible. Data on process oils therefore concentrates on their physical characteristics, which usually provides a good guide to the average chemical composition of each grade.

When selecting a **Brisol** or **Brisopar** speciality process oil for a particular application it is important to consider the full range of physical characteristics of the oil, as individual characteristics alone do not give a full indication of the chemical make-up of the product.

Selection criteria

The most important characteristics that the oil formulator needs to consider are viscosity and solvency. Solvency is affected by the following inter-related factors:

Density

Density increases with increasing molecular weight and decreasing degree of refining. At any given viscosity, the higher the density, the higher the aromaticity.

Viscosity

Within the same product group, oils with the lowest viscosity generally have the highest solvency.

Viscosity-Gravity Constant (VGC)

Viscosity and density are related by an expression – the viscosity gravity constant – which is independent of molecular weight. The VGC is generally regarded as the best guide to the overall aromaticity of an oil. In process oils, it usually ranges between 0.800 (paraffinic) and 1.00 (highly aromatic).

Refractive index

The refractive index of an oil increases with increasing aromaticity and molecular weight, so is not, by itself, an indicator of oil solvency.

Aniline point

As the aromaticity of an oil increases, the aniline point is lowered. However, as the aniline point also increases with molecular weight, it is important to consider this characteristic along with other physical properties such as the VGC in selecting the right product solvency.

Flash point

The flash point indicates the presence of lower boiling hydrocarbons in an oil, and is more a measure of potential fire hazard, rather than its volatility.

Volatility

For any high temperature processing application, volatility is an important consideration as oil fumes represent a serious health hazard. Oil volatility generally increases with decreasing viscosity.

Oil / Rubber compatibility

RUBBER (ATSM D1418)	PARAFFINIC	NAPHTHENIC	AROMATIC
BR	✓	✓	✓
CR	X	✓	✓
EPDM	✓	✓	X
NBR	X	X	✓
NR	✓	✓	✓
SBR	✓	✓	✓
SBS	✓	X	X

Effects of VGC and Viscosity on performance



Product Range

Alcohols
Aliphatic Solvents
Amines
Aromatics
Automotive Products

Blends
Burning Oils
Chlorinated Solvents
Custom Processing
Drilling Mud Fluids

Esters
Glycols
Glycol Ethers/Esters
Ketones
Heat Transfer Fluids

Performance Fuels
Plasticisers
Printing Ink Distillates
Process Oils
Refinery Naphthas

Special Kerosines
Speciality Base Oils
White Oils
Other products

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