

DURASYN® POLYALPHAOLEFIN (PAO)

1-Decene (C₁₀) Based PAOs

DURASYN® POLYALPHAOLEFINS - SPECIFICATION RANGES (UNITED STATES)

Routinely Measured

Durasyn PAO Grade	Method	162	164	166	168	170	174	180
Kinematic Visc, cSt, 100°C	ASTM D 445	1.55 - 2.10	3.8 - 4.1	5.7 - 6.1	7.7 - 8.0	9.4 - 10.2	39 - 41	98 - 102
Kinematic Visc, cSt, 40°C	ASTM D 445	4.5 - 6.5	16.0 - 18.5	29.0 - 33.0	45.0 - 49.0	62 - 69	380 - 430	1200 - 1350
Viscosity Index -	ASTM D 2270	-	-	-	-	-	-	-
Kinematic Visc, cSt, -40°C	ASTM D 445	-	2800 max	8200 max	24000 max	50000 max	-	-
Noack Vol. 250°C, 1hr, %wt Evap	DIN 51581	-	14.0 max	9.0 max	4.0 max	3.5 max	-	-
Pour Pt, °C	ASTM D 97	-55 max	-65 max	-60 max	-50 max	-45 max	-30 max	-18 max
Flash, °C (PMC)	ASTM D 93	-	-	-	-	-	-	-
Flash, °C (COC)	ASTM D 92	145 min	204 min	225 min	245 min	250 min	280 min	280 min
Fire Point, °C	ASTM D-92	-	-	-	-	-	310 min	320 min
Specific Gravity, at 15°C	ASTM D 4052	-	0.810 - 0.830	0.825 - 0.829	0.830 - 0.834	0.834 - 0.838	-	-
Specific Gravity, at 20°C	ASTM D 4052	-	-	-	-	-	0.840 - 0.850	0.845 - 0.855
Total Acid Number, mgKOH/g	ASTM D 974	0.01 max	0.01 max	0.01 max	0.01 max	0.01 max	0.02 max	0.02 max
Water Content, ppm	ASTM D 3401	75 max	25 max	25 max	25 max	35 max	-	-
Water Content, ppm	ASTM D 1744	-	-	-	-	-	50 max	50 max
Bromine Number, gBr/100g	IP 129	1.0 max	0.4 max	0.4 max	0.4 max	1.0 max	-	-
C10 Monomer wt%	GC	1.0 max	-	-	-	-	-	-
Color	ASTM D-1500	0.5 max	0.5 max	0.5 max	0.5 max	0.5 max	-	-
Color (APHA)	ASTM D-1209	-	-	-	-	-	50 max	50 max
Bromine Content, ppm	ASTM D-4927	-	-	-	-	-	50 max	70 max
Chlorine Content, ppm	ASTM D-4927	-	-	-	-	-	20 max	20 max

DURASYN® POLYALPHAOLEFINS - OTHER PROPERTIES

Durasyn PAO Grade	162	164	166	168	170	174	180
Kinematic Visc, cSt, -40°C	310	2626	8100	19660	37620	Solid	Solid
Kinematic Visc, cSt, -18°C	62	341	901	1605	2770	40200	203000
Kinematic Visc, cSt, 125°C	1.4	2.6	3.8	4.9	5.8	16.6	50.0
Kinematic Visc, cSt, 150°C	1.1	1.9	2.7	3.3	3.9	12.9	29.0
Kinematic Visc, cSt, 200°C	0.7	1.3	1.8	2.1	2.4	-	-
Molecular Weight Avg Value	287	443	554	629	690	1400	2000
Brookfield Visco,cP at -40°C	-	2100	6950	16920	-	-	-
Cold Cranking Simulator,cP -25°C	-	490	1300	3100	-	-	-
Vapour Pressure, mm Hg							
37.8°C (100°F)	-	-	<0.00047	0.00030	0.00010	-	-
93.3°C (200°F)	-	-	0.00101	0.00062	0.00050	-	-
148.9°C(300°F)	-	-	0.0019	0.0016	0.0017	-	-
Dielectric Constant, 23°C 1.0 and 1000kHz	2.076	2.102	2.118	2.122	2.130	2.150	2.151
Refractive Index N _D ²⁰	1.4450	1.4554	1.4596	1.4628	-	-	-
% Transmittance at 440 nm	99	99	99	99	99	-	-
VOC (Volatile Organic Compound) g/L	13.6	1.3	-	-	-	-	-
Appearance (Visual)	Clear/Bright	Clear/Bright	Clear/Bright	Clear/Bright	Clear/Bright	Clear/Bright	Clear/Bright
Color , APHA	<5	<5	<5	<5	<5	15	20
Aniline Point ,°C (°F)	-	116.7(242)	129.6(265)	123.3(254)	132.2(270)	153.3(308)	154.4(310)
DSC, Oxidative Onset Temperature,°C	-	192	192	191	191	189	188
DSC,Energy kJ/g	-	12.1	12.4	13.8	13.6	13.8	14.6
Noack Volatility 250°C,1 hour (% wt loss)	99	13.5	7.8	3.5	2.0	0.8	0.6

The physical properties of all the Durasyn grades of polyalphaolefin are summarized in the table above. The values quoted were obtained from samples of production materials, and are provided for guidance only. These are not intended to be specification properties.