

Poly(Alkylene Carbonates) Typical Properties

PROPERTY	QPAC® 25 Poly(ethylene carbonate)	QPAC® 40 Poly(propylene carbonate)	TEST METHOD
Molecular Weight (weight average)	100,000 - 250,000	150,000 - 350,000	GPC
Density (g/cm ³)	1.42	1.26	ASTM D792
Tensile Strength (psi @ 23°C)			
@ yield	670	4,500	---
@ break	1,700	1,760	---
Elongation (%)			ASTM D882
@ yield	---	3.5	---
@ break	918	150	---
Modulus of Elasticity (kpsi)	---	300	ASTM D638
Melt Flow Index (g/10 min @ 150°C/2160g)	1.4	0.9	ASTM D1238
Hardness (Shore D)	---	79	ASTM D2240
Izod Impact, Unfilled (ft•lb/in)	---	0.3 – 0.6	ASTM D256
H ₂ O Absorption @ 23°C (%)	0.4 – 0.6	0.4	ASTM D570
Dielectric Constant	4.32	3.00	ASTM D150
Loss Tangent (10 ³ Hz)	0.031	0.007	ASTM D150
Haze (%)	---	3.6	ASTM D1003
Refractive Index	1.470	1.463	ASTM D542
Decomposition Temperature (°C)	220	250	TGA
Glass Transition Temperature or Tg (°C)	10 – 28	40	DSC
Heat of Combustion (cal/gm)	3,753	4,266	---
Heat of Formation (kcal/mol)	-88.276	-145.647	---
Molar Mass	88.1	102.1	---
Solvents (see additional slides for detail)	MeCl ₂ , Chloroform, 1,2 Dichloroethane	Acetone, MeCl ₂ , MEK	---
Enzyme Biodegradability	Yes	No	---
Permeability (cc•mil/m ² •day•atm)			ASTM D1434
O ₂	1 – 5	15 – 35	---
CO ₂	23	123	---
N ₂	12	9	---
H ₂ O	3 – 15	3 – 18	---