

# ENBA poly(ethylene-co-n-butyl acrylate)

PARAMETER	UNIT	VALUE	REFERENCES
<b>GENERAL</b>			
Common name	-	poly(ethylene-co-n-butyl acrylate)	
CAS name	-	2-propenoic acid, butyl ester, polymer with ethene	
Acronym	-	ENBA	
CAS number	-	25750-84-9	
<b>SYNTHESIS</b>			
Monomer(s) structure	-	$\text{H}_2\text{C}=\text{CH}_2 \quad \text{H}_2\text{C}=\overset{\text{O}}{\parallel}\text{C}\text{COCH}_2\text{CH}_2\text{CH}_2\text{CH}_3$	
Monomer(s) CAS number(s)	-	74-85-1; 141-32-2	
Monomer(s) molecular weight(s)	dalton, g/mol, amu	28.05; 128.2	
Butyl acrylate content	%	0.18-32.5	
<b>COMMERCIAL POLYMERS</b>			
Some manufacturers	-	Arkema; BASF; DuPont; ExxonMobil, Westlake Chemical	
Trade names	-	Lotryl; Lucalen; Elvaloy; EnBA; EBAC	
<b>PHYSICAL PROPERTIES</b>			
Density at 20°C	g cm <sup>-3</sup>	0.90-0.94	
Color	-	colorless	
Haze	%	16	
Gloss, 60°, Gardner (ASTM D523)	%	60	
Odor		faint	
Melting temperature, DSC	°C	50-107	
Glass transition temperature	°C	-46 to -54	
Vicat temperature VST/A/50	°C	45-59	
Surface tension	mN m <sup>-1</sup>	23.9	
Dielectric constant at 100 Hz/1 MHz	-	2.7/	
Dissipation factor at 100 Hz	E-4	10	
Volume resistivity	ohm-m	1E14	
Coefficient of friction	-	0.45 (itself, dynamic)	
<b>MECHANICAL &amp; RHEOLOGICAL PROPERTIES</b>			
Tensile strength	MPa	1-24	
Tensile stress at yield	MPa	7-8	
Elongation	%	140-850	
Flexural modulus	MPa	5.4-7.2	
Shore A hardness	-	44-56	
Shore D hardness	-	40-56	
Brittleness temperature (ASTM D746)	°C	-50 to -73	
Melt viscosity, shear rate=0 s <sup>-1</sup>	Pa s	3,122	Tinson, A; Takacs, E; Vlachopoulos, J, Antec, 870-4, 2004.
Melt index, 190°C/3.8 kg	g/10 min	0.45-900	

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Water absorption, equilibrium in water at 23°C	%	0.5	
<b>FLAMMABILITY</b>			
Autoignition temperature	°C	>350	
<b>PROCESSING</b>			
Typical processing methods	-	film extrusion, extrusion, injection molding	
Preprocess drying: temperature/time/residual moisture	°C/h/%	60/5	
Processing temperature	°C	140-290	
Additives used in final products	-	Antiblock; Slip; Thermal stabilizer	
Applications	-	agricultural applications, automotive applications, cosmetics, film, hot melt adhesives and sealants, medical, wax blends	
<b>BLENDS</b>			
Compatible polymers	-	polyolefins, polyesters, ionomers, PVC, many polar polymers	