



# Specialty Polymers

Our Specialty Polymers business includes hydrogenated block copolymers (HSBC) marketed under the brands Kraton™ G, A and FG. Kraton G grades offer a higher service temperature range, improved compression set and can accept high loadings of oils and fillers for compounding. They are ideal for uses where improved UV and ozone resistance are required. They can be sterilized through a variety of methods and are compatible with polyolefins. Kraton G ERS are enhanced rubber segments polymers, which are highly compatible with polyolefins. In addition, Kraton HSBC polymers are manufactured in various physical forms. We have introduced the free-flowing version of several powder form grades, which enables more efficient processing, unpacking and handling.

Kraton A grades offer improved tear strength and enhanced flow with isotropic properties. These grades provide better compatibility with more polar chemistries. Select Kraton G and Kraton A grades are FDA compliant and USP Class VI. Kraton FG grades are maleic anhydride functionalized to provide performance enhancements in engineering thermoplastics.

## Kraton™ G SEBS Polymer Grades

Property	G1633	G1650	G1651	G1652	MD1653	
Tensile Strength, MPa <sup>1,2</sup>	-	35	>28	31	>28	
300% Modulus, MPa <sup>1,2</sup>	-	5.6	-	4.8	-	
Elongation at Break, % <sup>1,2</sup>	-	500	>800	500	500	
Hardness (10s), Shore A <sup>3</sup>	-	72	70	69	70	
Specific Gravity	0.91	0.91	0.91	0.91	0.90	
Brookfield Viscosity, mPa.s (or cP)						
25% w <sup>4</sup>	>50,000	8,000	>50,000	1,800 <sup>7</sup>	440	
15% w <sup>4</sup>	>30,000	50	1,800 <sup>7</sup>	30	-	
Melt Flow Rate (MFR), g/10 min						
200 °C /5kg	<1	<1	<1	<1	-	
230°C/5kg	<1	<1	<1	5	28 <sup>8</sup>	
Styrene/Rubber Weight Ratio <sup>5</sup>	30/70	30/70	33/67	30/70	31/69	
Diblock Content, % <sup>5</sup>	<1	<1	<1	<1	7	
Polymer Structure <sup>5</sup>	Linear	Linear	Linear	Linear	Linear	
Oil Content, %w	-	-	-	-	-	
Physical Form	Fluffy Crumb	Powder/Crumb	Powder/Crumb	Powder/Crumb	Dense Pellet	
Comments <sup>6</sup>	FDA	FDA	FDA	FDA	FDA	

[1] ASTM method D412 tensile.

[2] Typical properties determined on film cast from toluene solution.

[3] Typical values on polymer compression molded at 200-230 °C.

[4] Neat polymer concentration in toluene at 25 °C.

[5] Related to SBC polymer fraction.

[6] For specific FDA clearances, letters will be provided upon request.

[7] Measured at 10% w neat polymer concentration in toluene at 25 °C.

[8] Measured at 230 °C/2.16kg.

These are typical values and should not be used to set specifications.

# Kraton™ HSBC Family of Products

Family	Applications	Features	Benefits
<b>Kraton G</b> <b>SEBS &amp; SEP(S)</b> Styrene-Ethylene/ Butylene-Styrene Styrene-Ethylene/ Propylene-Styrene	Soft, strong handles and grips 2K overmolding for polyolefins Elastic films Multi-layer films for medical, food and beverage Automotive interior and exterior Cable gels Cosmetics Adhesives Oilfields Rigid and flexible packaging Base oil modification Medical tubing	High strength Highly dilutive Compatible with polyolefins and mineral oils Widest molecular weight range Low temperature impact FDA Compliant and USP Class VI Recyclability Silicone replacement	Excellent UV, thermal and color stability Low compression set Very good elasticity Improved compound flow Gels or thickens paraffin oils Efficient viscosity modification Suspension of heavier materials Enables circular economy High impact resistance and durability Packaging aesthetics Plastic product recyclability Cost efficient formulation
<b>Kraton G ERS</b> Enhanced Rubber Segment Styrene-Ethylene/ Butylene-Styrene	Medical tubing and IV bags Food and beverage containers Drinking water systems Protective films Automotive skins Elastic films Adhesives	Improved PP compatibility Improved clarity with PP Improved flow Widest melt flow range Softer than conventional Kraton G FDA compliant, USP Class VI and ISO 10993	Proven PVC alternative Ultra-clean and plasticizer-free Transparent overmolding Soft, elastic and good flow Suits all common sterilization methods
<b>Kraton A</b> Styrene-Ethylene/ Butylene/Styrene- Styrene	Wire and cables 2K overmolding Protective films Consumer products	Improved flow (isotropic properties) Compatibility with polystyrene and polar polymers Improved tear strength Compatible with natural and polar oils FDA compliant and USP Class VI	Highly transparent products Gels or thickens natural oils Enhanced filler loading Sound dampening
<b>Kraton FG</b> Maleic Anhydride (MA) Functionalized Styrene-Ethylene/ Butylene-Styrene	Natural fiber composites Adhesives Plastics recycling (compatibilizing of mixed recycled streams) Coatings Performance enhancement of engineering thermoplastics	High MA content High thermal stability Impact improver Oil and biobased materials compatibilizer Adhesion to polar substrates Recyclability Maintains transparency	Tough products Ductile failure mode High processing temperature stability New material combinations Enhanced mechanical properties High impact resistance Increased reusability of end plastic product Plastic product recyclability Broad design options and excellent coloring

	G1654	G1657	G1660	G1726	E1830	G4609	G4610
						Oiled	
	>27	23	32	2	>24	-	-
	-	2.4	5.5	-	5.5	-	-
	>800	750	800	200	>800	-	-
	70	47	68	60	61	22	36
	0.92	0.89	0.91	0.91	0.91	-	-
	>50,000	4,200	8,000	200	>50,000	11,000	>50,000
	400	65	50	10	1,600 <sup>7</sup>	50	240
	<1	8	<1	65	<1	<1	<1
	<1	22	<1	>100	<1	<1	<1
	31/69	13/87	31/69	30/70	33/67	33/67	33/67
	<1	29	<1	70	7	<1	<1
	Linear	Linear	Linear	Linear	Linear	Linear	Linear
	-	-	-	-	-	45	31
	Powder/Crumb	Dense Pellet	Powder	Dense Pellet	Powder/Crumb	Powder	Powder
	FDA	FDA	FDA	FDA	FDA	FDA	FDA