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Applications Elastomers



November 12, 2010


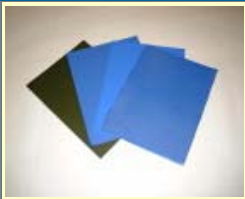

Automotive Applications – PP Modification

End products	Photo	Typical formulations	Functional effects, enhancements	Recommended grades
No-coat airbag covers		PP/TUFTEC™/additives	Moldability, Scratch resistance, Heat resistance (high-temp. retention of embossments), Weatherability. High-MW SEBS processability; enabling reduced oil addition, through use of low-MW SEBS, for superior balance of scratch resistance and moldability.	TUFTEC™ H1062 H1272
Bumpers		b-PP/TUFTEC™/TPO	Superior balance of stiffness, Low-temp. non-brittleness, Elongation. High-strength, thin-wall molding; reinforcing effect with high-flow PP. Thin-wall parts, for lighter weight, lower fuel consumption. High cost effectiveness, through combination with TPO.	TUFTEC™ H1062





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PVC Substitutes – PP Modification

End products	Photo	Typical formulations	Functional effects, enhancements	Recommended grades
Substrates of fastening tapes for protective sheets used in painting and construction.		PP/TUFTEC™	Flexible PP substitute for soft PVC, facilitating post-use disposal.	TUFTEC™ H1221
Logos, lines, other designs on sportswear, sports shoes, other goods.		PP/TUFTEC™	Performance and processability equaling PVC. Transparency, flexibility. Sheet production with conventional PVC calender. PVC look and feel – substantial weight, velvety touch. High-frequency welding capability similar to PVC, with appropriate additive.	TUFTEC™ H1221


Transparent tote bags for promotional hand-outs, pamphlets, other materials.		PP/TUFTEC™	Nano-order dispersion in PP resin, enabling superior softness and transparency together with retention of inherent PP properties. PVC look and feel – soft drape, substantial weight, velvety touch. Easy-handling, blocking-resistant pellet properties.	TUFTEC™ H1221
Tents. Work aprons.		PP/TUFTEC™	Lighter weight, easier handling than PVC.	TUFTEC™ H1221
Truck cover, tarpaulins.			Recycling-compatible film-laminated PP fabrics.	

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Food Containers				
End products	Photo	Typical formulations	Functional effects, enhancements	Recommended grades
Foamed, microwavable food trays.	Photo in preparation	HIPS/PP/TUFTEC™	Compatibility between PS and PP. Tensile elongation. Fine, uniform foaming, due to superior elasticity.	TUFTEC™ H1043 P2000
Portioned food containers, particularly machine-perforated.		HIPS/PP/TUFTEC™ (HIPS-rich)	Optimum compatibilization between HIPS and PP, for alloys combining superior HIPS machining properties with ease of PP top-film peel-off.	TUFTEC™ H1043 P2000
Laminate films for food containers.		HIPS/PP/TUFTEC™	PP and PS compatibilization and binding. Capability of film lamination for PS sheet. Superior film elongation, enhancing thickness uniformity in PS sheet laminates.	TUFTEC™ H1043 P2000
		GPPS/ASAFLEX™	Superior GPPS film elongation properties, with small-quantity ASAFLEX™ addition.	ASAFLEX™ 810 825 840
PS-sheet food containers.		GPPS/TUFPRENE™ GPPS/ASAFLEX™ /TUFPRENE™	Superior PS impact resistance and low-temp. properties, with small-quantity addition. Pellet configuration, facilitating blending with company polymer pellets in extruding machine. With TUFPRENE™ plus ASAFLEX™ addition: Deep-drawn sheets with superior thickness uniformity.	TUFPRENE™ A 125 126S ASAFLEX™ 810 815 835 845
			Superior PS impact resistance.	TUFPRENE™ A

Foamed nets.		GPPS/TUFPRENE™	Fine, uniform foaming, due to excellent PS compatibility of TUFPRENE™.	125 126S
Transparent cups.		GPPS/ASAFLEX™	High transparency, high impact resistance. Highly uniform container thickness. Superior cup stacking properties.	ASAFLEX™ 835 845
Non-food applications				
Wrap film for baled rubber.	Photo in preparation	HIPS/TUFPRENE™	Film forming capability. Bale wrap usable together with rubber in HIPS production.	TUFPRENE™ A

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- [Contact us](#) for information on the registered status or ratings of given grades for specific categories of use or application.
- None of the grades or products described herein are intended or supplied for use in any medical device or pharmaceuticals-related application of the following nature.
-Any application involving implantation in the human body.
-Any application involving more than 30 days of continuous contact with the human body (or with blood and other bodily fluids).
- [Contact us](#) before using any of these grades or products in any medical application or in any application involving food contact.

PE and PP Modification				
End products	Photo	Typical formulations	Functional effects, enhancements	Recommended grades
Elastic ribbon films, for snug-fit gathers in sanitary napkins and other products.		TUFTEC™/PE/additives	Superior elongation and recovery characteristics in gathers, for optimum fit and leakage prevention. Inherent melt-spinning capability. Fast, blocking-free yarn processing, through additive optimization.	TUFTEC™ H1052 H1062
Electric wire covering materials.	Photo in preparation	PE or PP/flame retardant /TUFTEC™ H, M	Flexibility, heightened properties balance (softness, elongation, rigidity, impact resistance), enabling olefins (e.g., PP, PPE, EVA) based electric line sheathing. TUFTEC™ M: Interaction with flame retardant, thus compatibilizing and finely dispersing flame retardant on addition to polyolefin.	TUFTEC™ H1221 M1911 M1913 M1943
Diaper backing sheets.	Photo in preparation	PP/TUFTEC™	Soft, supple sheet production, through blending of PP and H1221. Prevention of stiff feel.	TUFTEC™ H1221


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PPE and PA Modification				
End products	Photo	Typical formulations	Functional effects, enhancements	Recommended grades
IC trays, for IC baking process.	Photo in preparation	PPE/TUFTEC™	Superior impact resistance and resistance to cracking under repetitive thermal shock.	TUFTEC™ H1041 H1051 H1272
Automotive carpet backings.	Photo in preparation	PA/TUFTEC™ M/PO	Highly effective compatibilization of PA and PO. Facilitates recycling of trimmings.	TUFTEC™ M1943

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Thermosets Modification			
End products	Typical formulations	Functional effects, enhancements	Recommended grades
Bathtubs. Vanity cabinets.	Non-saturated polyester /TUFTEC™ H, M	Reduced shrinkage in FRP non-saturated polyester curing; prevention of sinkmark, warp, and crack formation.	ASAPRENE™ T-411 TUFTEC™ H1041 M1911 M1913 M1943
Artificial marble.	Non-saturated polyester /TUFPRENE™	Dissolution in styrene monomer FRP solvent, enabling excellent dispersion characteristics and stability.	
Encapsulant.	Epoxy/TUFTEC™ H, M	Compatibility with epoxy, enabling reduced shrinkage in epoxy curing, thus less internal stress and lower defect rate in IC boards. Prevention of sinkmark, warp, and crack formation.	TUFTEC™ H1041 M1911 M1913 M1943

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Compatibilization				
End products	Photo	Typical formulations	Functional effects, enhancements	Recommended grades
Microwavable food containers.	Photo in preparation	PP/PS/TUFTEC™	Compatibility between PS and PP. Tensile elongation. Fine, uniform foaming, due to superior elasticity. High cracking resistance and durability.	TUFTEC™ H1043 P2000
Inner laminate films for lunch boxes and trays.		HIPS/PP/TUFTEC™	Compatibilization and binding of PP and PS. Heat lamination of film to PS sheets. Excellent film elongation characteristics, enabling film-laminated PS sheets resistant to crazing and warping in lunch box and other container products.	TUFTEC™ H1043 P2000

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Elastomer Compounds				
End products	Photo	Typical formulations	Functional effects, enhancements	Recommended grades
Toys.		-	Increased flowability, expanded range of moldability for usual polymer compounds particularly with H1052. Capability for soft, supple touch and look.	TUFTEC™ H1052
Hand grips for ski poles and stocks, handlebars, other implements.		PP/TUFTEC™/oil	Elastic resilience, non-slip surface. Superior color development. Superior weatherability. Injection molding capability. Two-color molding capability, design freedom. Elastic resilience, non-slip surface.	TUFTEC™ H1272



	Photo in preparation		Superior weatherability. Injection molding capability.	
Swimming goggles.	Photo in preparation	PP/TUFTEC™/oil	Optimal soft touch, flexibility. Superior color development. Superior weatherability. Injection molding capability.	TUFTEC™ H1272

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Adhesives and Sealants			
End products	Typical formulations	Functional effects, enhancements	Recommended grades
Adhesives for building and construction.	TUFPRENE™/organic solvent ASAPRENE™ T/organic solvent	Superior transparency and combination of elastic and adhesive characteristics. Broad grade selection, for optimum solutions to specific requirements. Retention of elastic resilience and soft, supple touch after adhesive setting. Available as pellets, for ease of handling and use.	TUFPRENE™ △ ASAPRENE™ T-411 T-438
Adhesives for bottle and other labels.	TUFTEC™/organic solvent	Superior weatherability, high peeling resistance. Available as pellets, for ease of handling and use.	TUFTEC™ H1053
Hot-melt pressure-sensitive adhesives for sanitary and other products.	TUFPRENE™/tackifier/oil ASAPRENE™ T/tackifier/oil TUFTEC™/tackifier/oil	Superior adhesion to PE and PP substrates. Superior processability and adhesion characteristics. TUFPRENE™: Superior hot-melt pressure-sensitive formulations with outstanding flexibility and tackiness characteristics. TUFTEC™: Superior hot-melt pressure-sensitive formulations with outstanding flexibility, tackiness, transparency, and thermal stability, and very low odor emission caused by thermal decomposition.	TUFPRENE™ △ ASAPRENE™ T-438 TUFTEC™ H1053 P1500
Adhesive layer in protective films.	TUFPRENE™ or TUFTEC™ /tackifier/oil	Utilization of adhesive effects inherent to elastomer. TUFTEC™: Superior weatherability. Freedom from layer peel-off during use, freedom from adhesive residue during layer separation for polymer reuse or disposal.	TUFPRENE™ △ TUFTEC™ H1052
Shock and vibration dampers.	TUFTEC™/plasticizer/tackifier	Formation of viscous semi-liquid consistency, through compatibility with plasticizer and tackifier. Low variation in viscosity in winter.	TUFTEC™ H1041 H1221

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Asphalt Modification				
End products	Photo	Typical formulations	Functional effects, enhancements	Recommended grades
Heavy-duty or high-drainage road paving.	 Foreground: High-drain	Asphalt/TUFPRENE™ Asphalt/ASAPRENE™ T	Dramatic heightening of asphalt characteristics, with 3~10% addition. Reduced temperature sensitivity, broader range of service temperatures. Heightened softening temp., increased cohesive strength and adhesion to aggregates. Superior low-temperature characteristics. Increased elasticity, impact	ASAPRENE™ T-411 T-437

	asphalt Background: Conventional asphalt		resistance, durability, service life. Asphalt compatibility, resulting in reduced need for compatibilizer addition and thus in reduced cost. Shortened mixing time for stable dispersion.	
Adhesive asphalt layer in waterproof sheeting for housing, buildings, and civil construction.		Asphalt/TUFPRENE™ Asphalt/ASAPRENE™ T	Ready optimization of formulation for construction methods and conditions. Reduced temperature sensitivity, broader range of service temperatures. Heightened softening temp., increased cohesive strength and adhesion to aggregates. Superior low-temperature characteristics. Increased elasticity, impact resistance, durability, service life.	TUFPRENE™ △ ASAPRENE™ T-411
Waterproof heat-cured coatings for bridge floor plates.		Asphalt/TUFTEC™	Expanded service temp. range; superior temp. characteristics; minimal high-temp. deformation and low-temp. brittleness. High mechanical strength, elongation characteristics; superior conformity to bridge floor cracking, vibration, or warpage.	TUFTEC™ H1053

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