

TRIAX[®] 3050

ABS/Nylon Alloy

Injection Molding Grade

Description

Triax 3050 resin is an ABS (Acrylonitrile Butadiene Styrene)/Nylon 6 alloy for injection molding. It is a semicrystalline thermoplastic with improved stability to light exposure, excellent processibility, good chemical resistance, good fatigue performance, and excellent abrasion characteristics. Triax 3050 resin exhibits a good balance of impact strength and flow properties.

Applications

Typical applications include interior automotive applications. As with any product, use of Triax 3050 resin in a given application must be tested (including but not limited to field testing) in advance by the user to determine suitability.

Drying

Triax ABS/Nylon alloy resins absorb moisture and must be dried prior to processing. The moisture level of the dried resin should be between 0.15 and 0.35%. A desiccant dehumidifying hopper dryer with a maximum inlet air dew point of -20°F (-29°C) is recommended. Typical drying conditions are 2 to 4 hours at 190°F (88°C) and should not exceed 200°F (93°C).

Processing

A reciprocating screw injection molding machine is recommended for Triax 3050 resin. A general-purpose screw with a 2.5:1 compression ratio is suggested. A minimum L/D ratio of 20:1 will ensure melt homogeneity.

For best part quality, use the lower range of the recommended melt temperature with minimum barrel residence time. To avoid excessive residence time in the barrel, volume and weight of the shot should be balanced against barrel capacity and injection stroke. A shot weight-to-machine capacity ratio of 0.5 to 0.7 is recommended; ratios below 0.3 should definitely be avoided.

Typical processing parameters are noted below. Actual processing conditions will depend on machine size, mold design, material residence time, shot size, etc.

Typical Injection Molding Conditions	
Barrel Temperatures:	
Rear.....	450° – 510°F (232° – 266°C)
Middle.....	450° – 510°F (232° – 266°C)
Front.....	450° – 510°F (232° – 266°C)
Nozzle.....	480° – 500°F (249° – 260°C)
Melt Temperature.....	460° – 520°F (238° – 271°C)
Mold Temperature.....	100° – 150°F (38° – 66°C)
Injection Pressure.....	6,000 – 12,000 psi
Hold Pressure.....	30 – 50% of Injection Pressure
Back Pressure.....	50 – 100 psi
Screw Speed.....	Moderate
Injection Speed.....	Fast
Cushion	1/8 in max
Clamp.....	3 – 5 ton/in ²

Additional information on processing may be obtained by contacting an INEOS ABS technical service representative.

Regrind Information

Where end-use requirements permit, up to 20% Triax resin regrind may be used with virgin material during injection molding, provided that the material is kept free of contamination and is properly dried (see section on Drying). Any regrind used must be generated from properly molded parts, sprues, and/or runners. All regrind used must be clean, uncontaminated, and thoroughly blended with virgin resin prior to drying and processing. Under no circumstances should degraded, discolored, or contaminated material be used for regrind. Materials of this type should be properly discarded.

Improperly mixed and/or dried regrind may diminish the desired properties of Triax ABS/Nylon alloy resin. It is critical that you test finished parts produced with any amount of regrind to ensure that your end-use performance requirements are fully met. Regulatory or testing organizations (e.g., UL) may have specific requirements limiting the allowable amount of regrind. Because third party regrind generally does not have a traceable heat history, or offer any assurance that proper temperatures, conditions, and/or materials were used in processing, extreme caution must be exercised in buying and using regrind from third parties.

The use of regrind material should be avoided entirely in those applications where resin properties equivalent to virgin material are required, including but not limited to color quality, impact strength, resin purity, and/or load-bearing performance.

Health and Safety Information

Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling the INEOS ABS products mentioned in this publication. For materials mentioned which are not INEOS ABS products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be followed. Before working with any of these products, you must read and become familiar with the available information on their hazards, proper use, and handling. This cannot be overemphasized. Information is available in several forms, e.g., *material safety data sheets and product labels*. Consult your INEOS ABS representative or contact the Product Safety and Regulatory Affairs Department at INEOS ABS.

Typical Properties* for Natural Resin	ASTM Test Method (Other)	Triax® 3050 Resin	
		Dry as Molded	Conditioned
General Specific Gravity Density Specific Volume Mold Shrinkage Parallel to Flow Cross to Flow Melt Flow Rate at 260°C/5-kg Load Water Absorption 73°F, immersion to saturation 73°F, immersion for 24 hours	D 792 D 792 D 792 D 955 D 1238 D 570	1.06 0.038 lb/in ³ 26.1 in ³ /lb 0.009 in/in 0.010 in/in 6 g/10 min 4.3% 1.1%	
Mechanical Tensile Stress at Yield Tensile Elongation at Break Tensile Modulus Flexural Stress at Yield Flexural Modulus Impact Strength, Notched Izod: 0.125-in Thickness 73°F -40°F 0.250-in Thickness 73°F -40°F Instrumented Impact, Total Energy: -40°F; 0.100-in; 0.5-in dart; 1.6-in clamp; 7.6 mph Rockwell Hardness, R Scale	D 638 D 638 D 638 D 790 D 790 D 256 D 3763 D 785	6,300 lb/in ² >50% 315,000 lb/in ² 10,900 lb/in ² 300,000 lb/in ² 15 ft-lb/in 1.5 ft-lb/in 14 ft-lb/in 1.3 ft-lb/in 35 ft-lb 105	5,800 lb/in ² >100% 295,000 lb/in ² 8,250 lb/in ² 170,000 lb/in ² 15 ft-lb/in 1.5 ft-lb/in 14 ft-lb/in 1.4 ft-lb/in 44 ft-lb 90
Thermal Deflection Temperature Under Load: 0.125-in Thickness, Unannealed 264 psi 66 psi 0.250-in Thickness, Unannealed 264 psi 66 psi Vicat Softening Temperature Rate B; 1-kg; 120°C/h	D 648 D 1525	149°F 194°F 165°F 207°F 365°F	144°F 190°F 162°F 205°F 338°F
Electrical Dielectric Constant, Tinfoil Electrodes (1MHz) Dissipation Factor, Tinfoil Electrodes (1 MHz) Surface Resistivity Dielectric Strength Short time under oil at 73°F; 0.062-in thickness	D 150 D 150 D 257 D 149	3.5 0.024 8.3E+15 Ohm 425 V/mil	3.5 0.039 3.2E+13 Ohm 380 V/mil

* These items are provided as general information only. They are approximate values and are not part of the product specifications.

Dry as Molded: Refers to a moisture content of less than 0.2% by weight.

Conditioned: Refers to an equilibrium moisture content in a standard laboratory atmosphere of 73°F (23°C) and 50% relative humidity.

Note: The information contained in this publication is current as of November 2009. Please contact INEOS ABS to determine whether this publication has been revised.

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