Hytrel® 4053FGF NC010 (PRELIMINARY)

THERMOPLASTIC POLYESTER ELASTOMER

Common features of Hytrel® thermoplastic polyester elastomer include mechanical and physical properties such as exceptional toughness and resilience, high resistance to creep, impact and flex fatigue, flexibility at low temperatures and good retention of properties at elevated temperatures. In addition, it resists many industrial chemicals, oils and solvents. Special grades include heat stabilised, flame retardant, food contact compliant, blow molding and extrusion grades. Concentrates offered include black pigments, UV protection additives, heat stabilisers, and flame retardants.
Hytrel® thermoplastic polyester elastomer is plasticiser free.

The good melt stability of Hytrel® thermoplastic polyester elastomer normally enables the recycling of properly handled production waste. If recycling is not possible, we recommend, as the preferred option, incineration with energy recovery (-24 kJ/g of base polymer) in appropriately equipped installations.
For disposal, local regulations have to be observed.

Hytrel® thermoplastic polyester elastomer typically is used in demanding applications in the automotive, fluid power, electrical/electronic, consumer goods, appliance and power tool, sporting goods, furniture, industrial and off-road transportation/equipment industry.

Hytrel® 4053FGF is a low modulus high performance thermoplastic elastomer developed for applications in contact with food including fatty acid food. It is suitable for extrusion and injection molding processes.

FOOD CONTACT
This product is manufactured according to Good Manufacturing Practice (GMP) principles and generally accepted in food contact applications in Europe and the USA when meeting applicable use conditions.

Product information

Resin Identification	TPC-ET	ISO 1043
Part Marking Code	>TPC-ET<	ISO 11469

Rheological properties

Melt mass-flow rate	9.5	g/10min	ISO 1133
Melt mass-flow rate, Temperature	190	°C	
Melt mass-flow rate, Load	2.16	kg	
Moulding shrinkage, parallel	0.2	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.2	%	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	55	MPa	ISO 527-1/-2
Stress at 5% strain	2.5	MPa	ISO 527-1/-2
Stress at 10% strain	4	MPa	ISO 527-1/-2
Stress at 50% strain	7	MPa	ISO 527-1/-2
Stress at 100% strain	8	MPa	ISO 527-1/-2
Stress at break	24	MPa	ISO 527-1/-2
Nominal strain at break	900	%	ISO 527-1/-2
Strain at break	>300	%	ISO 527-1/-2
Flexural Modulus	60	MPa	ISO 178

Printed: 2023-09-22

Celanese
The chemistry inside innovation™

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Charpy notched impact strength, 23°C	N	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	N	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -40°C	100	kJ/m²	ISO 179/1eA
Izod notched impact strength, -40°C	68[P]	kJ/m²	ISO 180/1A
Poisson's ratio	0.5		
Shore D hardness, 15s	36		ISO 48-4 / ISO 868
Shore D hardness, max	38		ISO 868

[P]: Partial Break

Thermal properties

Melting temperature, 10°C/min	148	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	-50	°C	ISO 11357-1/-3
Vicat softening temperature, 50°C/h 10N	100	°C	ISO 306

Other properties

Density	1150	kg/m³	ISO 1183

Injection

Drying Recommended	yes		
Drying Temperature	80	°C	
Drying Time, Dehumidified Dryer	2 - 3	h	
Processing Moisture Content	≤0.08	%	
Melt Temperature Optimum	180	°C	Internal
Mold Temperature Optimum	35	°C	
Min. mould temperature	30	°C	
Max. mould temperature	40	°C	

Extrusion

Drying Temperature	70 - 90	°C	
Drying Time, Dehumidified Dryer	2 - 3	h	
Processing Moisture Content	≤0.06	%	
Melt Temperature Optimum	170	°C	

Chemical Media Resistance

Other

- ✔ Water, 90°C

Symbols used:

✔ possibly resistant
Defined as: Supplier has sufficient indication that contact with chemical can be potentially accepted under the intended use conditions and expected service life. Criteria for assessment have to be indicated (e.g. surface aspect, volume change, property change).

✘ not recommended - see explanation
Defined as: Not recommended for general use. However, short-term exposure under certain restricted conditions could be acceptable (e.g. fast cleaning with thorough rinsing, spills, wiping, vapor exposure).

Printed: 2023-09-22