

TYRIL™ 905

SAN Resin

Trinseo

Message:

TYRIL* styrene-acrylonitrile (SAN) resins are designed to offer superior chemical resistance, strength, hardness and dimensional stability in a broad range of product applications. The key property of TYRIL 905 is its superior water-clear clarity compared to other SAN resins and a high thermal stability that results in consistent color (reduced yellowing). TYRIL 905 is designed for applications demanding chemical and heat resistance and offers good processability. TYRIL 905 represents a technology breakthrough in trace-color reduction. Its thermal stability and exceptionally low base color make it a product especially suited for self-coloring. The UV-stabilized version exhibits excellent weather ability, suitable in particular for lighting applications.

Applications:

Large appliances: transparent refrigerator parts

Lighting applications: louvers and covers

Automotive: taillight lenses and reflectors

Cosmetic packaging: water-clear, thick-wall applications

General Information			
UL YellowCard	E162447-238300	E162447-238301	
Features	Good Chemical Resistance		
	Good Dimensional Stability		
	Good Processability		
	Good Strength		
	Good Thermal Stability		
	High Clarity		
	High Heat Resistance		
Uses	Appliances		
	Automotive Applications		
	Lighting Applications		
	Packaging		
Appearance	Clear/Transparent		
Forms	Pellets		
Processing Method	Blow Molding		
	Extrusion		
	Injection Molding		
	Sheet Extrusion		
	Thermoforming		
Physical	Nominal Value	Unit	Test Method
Specific Gravity			
--	1.08	g/cm³	ASTM D792, ISO 1183/B
--	1080	kg/m³	ISO 1183 ¹
Apparent Density	0.69	g/cm³	ASTM D1895, ISO 60

Melt Mass-Flow Rate (MFR)			ASTM D1238, ISO 1133
220°C/10.0 kg	13	g/10 min	
230°C/3.8 kg	5.0	g/10 min	
Melt volume-flow rate (220°C/10.0 kg)	16.0	cm ³ /10min	ISO 1133 ²
Water Absorption			ISO 62 ³
Saturation	0.20	%	
Equilibrium	0.50	%	
Viscosity number	117	cm ³ /g	ISO 307, 1157, 1628 ⁴
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (M-Scale)	82		ASTM D785, ISO 2039-2
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
--	3600	MPa	ASTM D638, ISO 527-2
--	3350	MPa	ISO 527-2 ⁵
Tensile Stress			
Yield	65.0	MPa	ISO 527-2 ⁶
Break ⁷	68.0	MPa	ASTM D638
Break	68.0	MPa	ISO 527-2/5
Tensile Strain (Yield)	2.5	%	ISO 527-2 ⁸
Nominal strain at break	2.5	%	ISO 527-2 ⁹
Flexural Strength	95.0	MPa	ASTM D790, ISO 178
Impact	Nominal Value	Unit	Test Method
Charpy Unnotched Impact Strength			
23°C	15	kJ/m ²	ISO 179
-30°C	17.0	kJ/m ²	ISO 179/1eU ¹⁰
23°C	16.0	kJ/m ²	ISO 179/1eU ¹¹
Unnotched Izod Impact Strength (23°C)	12	kJ/m ²	ISO 180
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
1.8 MPa, Annealed	100	°C	ASTM D648, ISO 75-2/A
1.8 MPa	100	°C	ISO 75-2 ¹²
Vicat Softening Temperature			
--	101	°C	ASTM D1525, ISO 306/B50 ⁵ ¹³
--	110	°C	ASTM D1525, ISO 306/A120 ⁶ ¹⁴
50°C/h, B (50N)	104	°C	ISO 306 ¹⁵
CLTE			
Flow	5.0E-5	cm/cm/°C	DIN 53752
Flow	4.0E-5	cm/cm/°C	ISO 11359-2 ¹⁶
Transverse	6.0E-5	cm/cm/°C	ISO 11359-2 ¹⁷
Specific Heat	1380	J/kg/°C	ASTM D2766
Electrical	Nominal Value	Unit	Test Method

Surface resistivity	> 1.0E+15	ohms	IEC 60093 ¹⁸
Volume resistivity	> 1.0E+13	ohms · m	IEC 60093 ¹⁹
Electric Strength	9.1	kV/mm	IEC 60243-1
Relative Permittivity			
1 MHz	3.00		IEC 60250
100 Hz	3.00		IEC 60250 ²⁰
Dissipation Factor (1 MHz)	1.0E-4		IEC 60250
Flammability	Nominal Value	Unit	Test Method
Flame Rating ²¹ (1.60 mm)	HB		UL 94
Burning Behav. at 1.6mm nom. thickn. (1.50 mm, UL)	HB		ISO 1210 ²²
NOTE			
1.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.		
2.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.		
3.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.		
4.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.		
5.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.		
6.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.		
7.	5.0 mm/min		
8.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.		
9.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.		
10.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.		
11.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.		
12.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.		
13.	Rate A (50°C/h), Loading 2 (50 N)		
14.	Rate B (120°C/h), Loading 1 (10 N)		

15.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.
16.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.
17.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.
18.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.
19.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.
20.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.
21.	This rating not intended to reflect hazards presented by this or any other material under actual fire conditions.
22.	Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.

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