## Mirakutoran® TPU P195

Thermoplastic Polyurethane Elastomer Alloy Japan Mirakutoran Inc.

## Message:

Our TPU "Mirakutoran ®" has the following outstanding features.

Has excellent wear resistance

Tensile strength, high mechanical strength and tear strength

Is a wide range of hardness

High impact strength

Oil resistance and good chemical resistance

Excellent low temperature properties, weather resistance, ozone resistance and is also good

Flexible rubber elastic, vibration-effective silencing

Compared to other urethane elastomer thermoplastic that is more

Playback can be processed

Vulcanization process without curing reaction, very high productivity

Resins and other polymer is easy

Solution is easily dissolved in solvent process

Mirakutoran to the standard type E and P are two types.

Type E has a certain cross-linked structure in the molecule, and excellent mechanical strength and compression set. P type is characterized by good liquidity linear structure

General Information	
Features	Shock absorption
	Impact resistance, good
	Good strength
	Good flexibility
	Good tear strength
	Ozone resistance
	Low temperature resistance
	Good chemical resistance
	Good wear resistance
	Good weather resistance
	Oil resistance

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.23	g/cm³	ASTM D792
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness			ASTM D2240
Shore A, 23°C, 2.00mm, injection molding	93 - 97		ASTM D2240
Shore D, 23°C, 2.00mm, injection molding	46		ASTM D2240
Mechanical	Nominal Value	Unit	Test Method
Taber Abrasion Resistance (23°C, 1000 Cycles, 1000 g, H-22 Wheel)	52.0	mg	ASTM D1044
Elastomers	Nominal Value	Unit	Test Method

Tensile Strength <sup>2</sup> (Yield, 23°C, 2.00 mm) 49.0 MPa ASTM II  Tensile Elongation <sup>3</sup> (Break, 23°C, 2.00 mm) 520 % ASTM II  Tear Strength <sup>4</sup> (23°C, 2.00 mm) 103 kN/m ASTM II  Compression Set (70°C, 22 hr) 37 % ASTM II  Rebound Resilience (23°C, 2.00 mm) 35 %  Thermal Nominal Value Unit Test M  Glass Transition Temperature -41.0 °C DSC  Vicat Softening Temperature 115 °C ASTM II  Additional Information  Test Methods: JIS K7311, K6262, K7206  NOTE  1. 300 mm/min  2. 300 mm/min  3. 300 mm/min  4. 300 mm/min				
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Tensile Elongation <sup>3</sup> (Break, 23°C, 2.00 mm) 520 % ASTM Compression Set (70°C, 22 hr) 37 % ASTM Compression Set (70°C, 22 hr) 37 % ASTM Compression Set (70°C, 22 hr) 35 %  Thermal Nominal Value Unit Test M Glass Transition Temperature -41.0 °C DSC Vicat Softening Temperature 115 °C ASTM Compression Set (70°C) ASTM Compression Set (70°C	2.00mm)	9.00	MPa	ASTM D412
Tear Strength <sup>4</sup> (23°C, 2.00 mm) 103 kN/m ASTM Compression Set (70°C, 22 hr) 37 % ASTM Compression Set (70°C, 22 hr) 35 %  Rebound Resilience (23°C, 2.00 mm) 35 %  Thermal Nominal Value Unit Test M Glass Transition Temperature -41.0 °C DSC Vicat Softening Temperature 115 °C ASTM Compression Set Methods: JIS K7311, K6262, K7206  NOTE  1. 300 mm/min 2. 300 mm/min 3. 300 mm/min 4. 300 mm/min	Tensile Strength <sup>2</sup> (Yield, 23°C, 2.00 mm)	49.0	MPa	ASTM D412
Compression Set (70°C, 22 hr) 37 % ASTM II Rebound Resilience (23°C, 2.00 mm) 35 %  Thermal Nominal Value Unit Test M Glass Transition Temperature -41.0 °C DSC  Vicat Softening Temperature 115 °C ASTM II Additional Information  Test Methods: JIS K7311, K6262, K7206  NOTE  1. 300 mm/min 2. 300 mm/min 3. 300 mm/min 4. 300 mm/min	Tensile Elongation <sup>3</sup> (Break, 23°C, 2.00 mm)	520	%	ASTM D412
Rebound Resilience (23°C, 2.00 mm) 35 %  Thermal Nominal Value Unit Test M Glass Transition Temperature -41.0 °C DSC  Vicat Softening Temperature 115 °C ASTM D Additional Information  Test Methods: JIS K7311, K6262, K7206  NOTE  1. 300 mm/min 2. 300 mm/min 3. 300 mm/min 4. 300 mm/min	Tear Strength <sup>4</sup> (23°C, 2.00 mm)	103	kN/m	ASTM D624
Thermal Nominal Value Unit Test M Glass Transition Temperature -41.0 °C DSC Vicat Softening Temperature 115 °C ASTM D Additional Information Test Methods: JIS K7311, K6262, K7206  NOTE  1. 300 mm/min 2. 300 mm/min 3. 300 mm/min 4. 300 mm/min	Compression Set (70°C, 22 hr)	37	%	ASTM D395
Glass Transition Temperature -41.0 °C DSC  Vicat Softening Temperature 115 °C ASTM D  Additional Information  Test Methods: JIS K7311, K6262, K7206  NOTE  1. 300 mm/min 2. 300 mm/min 3. 300 mm/min 4. 300 mm/min	Rebound Resilience (23°C, 2.00 mm)	35	%	
Vicat Softening Temperature       115       °C       ASTM E         Additional Information       Test Methods: JIS K7311, K6262, K7206         NOTE         1.       300 mm/min         2.       300 mm/min         3.       300 mm/min         4.       300 mm/min	Thermal	Nominal Value	Unit	Test Method
Additional Information  Test Methods: JIS K7311, K6262, K7206  NOTE  1. 300 mm/min 2. 300 mm/min 3. 300 mm/min 4. 300 mm/min	Glass Transition Temperature	-41.0	°C	DSC
Test Methods: JIS K7311, K6262, K7206  NOTE  1. 300 mm/min 2. 300 mm/min 3. 300 mm/min 4. 300 mm/min	Vicat Softening Temperature	115	°C	ASTM D1525 <sup>5</sup>
NOTE  1. 300 mm/min  2. 300 mm/min  3. 300 mm/min  4. 300 mm/min	Additional Information			
1.     300 mm/min       2.     300 mm/min       3.     300 mm/min       4.     300 mm/min	Test Methods: JIS K7311, K6262, K7206			
2.     300 mm/min       3.     300 mm/min       4.     300 mm/min	NOTE			
3.     300 mm/min       4.     300 mm/min	1.	300 mm/min		
4. 300 mm/min	2.	300 mm/min		
· · · · · · · · · · · · · · · · · · ·	3.	300 mm/min		
E #1 (10N)	4.	300 mm/min		
5. <u>/E</u> /JT (101N)	5.	压 力1 (10N)		

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