

# Mirakutoran® TPU E580

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  | 1.16                       | g/cm <sup>3</sup> | ASTM D792   |
| Hardness  | Nominal Value              | Unit              | Test Method |
| Durometer Hardness (Shore A, 23°C, 2.00mm, injection molding)     | 78 - 82                    |                   | ASTM D2240  |
| Mechanical  | Nominal Value              | Unit              | Test Method |
| Taber Abrasion Resistance (23°C, 1000 Cycles, 1000 g, H-22 Wheel) | 15.0                       | mg                | ASTM D1044  |
| Elastomers  | Nominal Value              | Unit              | Test Method |
| Tensile Stress <sup>1</sup> (100% strain, 23°C, 2.00mm)           | 4.00                       | MPa               | ASTM D412   |
| Tensile Strength <sup>2</sup> (Yield, 23°C, 2.00 mm)              | 47.0                       | MPa               | ASTM D412   |

| Tensile Elongation <sup>3</sup> (Break, 23°C, 2.00 mm) | 580           | %    | ASTM D412               |
|--|---------------|------|-------------------------|
| Tear Strength <sup>4</sup> (23°C, 2.00 mm)             | 93.0          | kN/m | ASTM D624               |
| Compression Set (70°C, 22 hr)                          | 30            | %    | ASTM D395               |
| Rebound Resilience (23°C, 2.00 mm)                     | 61            | %    |                         |
| Thermal  | Nominal Value | Unit | Test Method             |
| Glass Transition Temperature                           | -49.0         | °C   | DSC                     |
| Vicat Softening Temperature                            | 100           | °C   | ASTM D1525 <sup>5</sup> |
| 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    |      |                         |
| 5.   | 压力1 (10N)     |      |                         |

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### Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533

Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China

