

## Injection Properties for ECOZEN<sup>®</sup> T90D

Product Name	: ECOZEN <sup>®</sup> T90D
Test Results	: For further details, please contact SK chemicals R&D center.
Test Performed	: SK Chemicals R&D center

Property	Test Method	Unit	Typical Values
Rockwell Hardness	ASTM D785	R-scale	115
Specific Gravity	ASTM D792	-	1.25
Moisture Absorption Factor	ASTM D570	%	0.2 – 0.3
<b>Mechanical</b>			
Tensile Strength @ Yield 50mm/min (2 inch/min)	ASTM D638	kgf/cm <sup>2</sup>	446
Tensile Strength @ Break 50mm/min (2 inch/min)	ASTM D638	kgf/cm <sup>2</sup>	450
Elongation @ Yield 50mm/min (2 inch/min)	ASTM D638	%	5.5
Elongation @ Break 50mm/min (2 inch/min)	ASTM D638	%	360
Flexural Strength 1.27mm/min (0.05 inch/min)	ASTM D790	kgf/cm <sup>2</sup>	640
Flexural Modulus 1.27mm/min (0.05 inch/min)	ASTM D790	kgf/cm <sup>2</sup>	17200
Izod Impact Strength, Notched @ 23 oC(73 oF)	ASTM D256	J/m	No Break
<b>Thermal</b>			
Heat Distortion Temperature @ 0.455 MPa(66 psi)	ASTM D648	°C	75
Glass Transition Temperature	ASTM D1525	°C	85
<b>Optical</b>			
Haze	ASTM D1003	%	< 1.0
Transmittance	ASTM D1003	%	90
Refractive Index, n <sub>D</sub>	ASTM D542	-	1.56

The data listed here is preliminary data sheet of product. Therefore this sheet should not be used to establish specification limits or used alone as a basis for design. This information is not intended as a warranty of any kind. Customers must make their own representative test and assume all risks of use, whether used alone or in combination with other products. SK Chemicals assumes no obligation or liability of any advice furnished by it or results obtained with respect to these products. All warranties of merchantability for a particular purpose or use are excluded and disclaimed.

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The information in this data sheet is, to the best of our knowledge, true and accurate. The representations about the product are based upon test results achieved under laboratory practices supervised and controlled by SK chemicals corporation.

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### Drying Condition

- Drying Temperature : 65~70 °C
- Drying Time : Min. 6 Hours / Max. 10 Hours
- Air Flow of Dry Air : > 0.065 m<sup>3</sup>/min per kg/h(1cfm per lb/h)
- Dew Point of Dry Air : < -30 °C, -40 °C is better for good drying
- Residual Moisture Contents : <0.05%(500ppm)

### Problems Caused by Insufficient Drying

- Molecular weight (I.V) deduction of the polymer and degradation of any additives.
- Adverse effect of color of the final product
- Difficult control of the processing parameters such as melt pressure, rheology, and power consumption
- Bubble and silver streaks

### Hopper recommendation

- Capacity of Hopper : 6 - 12 times extruder output
- Height/Diameter Ratio : >2:1, 3:1 is better for plug flow of material
- Insulation : Well-insulation to improve the efficiency
- Monitoring : Inlet Air Temperature, Dew point

### General Guideline

- Mold temperature: 15 - 30 °C
- Reuse of regrind
  - Contents of regrind : < 20%
  - Drying before use
  - Filtering of fines to prevent fish-eye

### Head & Die Design

- Low shear Head Design
- Die : Torpedo or Spider Type  
Low Restriction Die
- Preheating is needed to avoid damage of head and screw

### Screw Design

- Low shear type is preferred to avoid shear and thermal degradation.
- General screw for PVC, PC can be used.
- L/D: 24:1 or greater
- Compression ratio: 2.5:1 - 3:1
- Barrier flight for effective melting

### Typical processing condition

- |                      |        |                   |                   |  |
|----------------------|--------|-------------------|-------------------|--|
| • Barrel temperature | °C(°F) | 200~220 (392~428) |                   |  |
|                      |        | Adapter           |                   |  |
| • Connection         | °C(°F) | 200~210 (392~410) |                   |  |
|                      |        | Head              | Die Tip           |  |
| • Die                | °C(°F) | 175~200 (347~392) | 175~ 200(347~392) |  |

# Processing conditions shown in the example of a typical processing profile may vary somewhat in other similar applications.