

## Technical Data Sheet

**Type:** ESTANE® 54640 is an 85A aromatic Polyether-Based Thermoplastic Polyurethane (TPU).

**Features:** Very good physical properties and hydrolysis resistance and wide processing window for calendering.

**Uses:** Melt coating/calendering, flat die/cast film extrusion.

| Physical Properties     | Value (Metric) | Unit          | Test Method                 |
|-------------------------|----------------|---------------|-----------------------------|
| Hardness (5 sec)        | 85 +/- 3       | Shore A       | ASTM D-2240                 |
| Specific Gravity        | 1.13           |               | ASTM D-792                  |
| Tensile Strength        | 6600 (45.5)    | psi (MPa)     | ASTM D-412                  |
| Ultimate Elongation     | 520            | %             | "                           |
| Tensile Stress at       |                |               |                             |
| - 100 % Elongation      | 900 (6.2)      | psi (MPa)     | ASTM D-412                  |
| - 300 % Elongation      | 1700 (11.7)    | psi (MPa)     | "                           |
| Tear Strength           |                |               |                             |
| Graves                  | 390 (7.0)      | lb/in (kg/mm) | ASTM D-624 (die C)          |
| Trouser                 | 120 (2.1)      | lb/in (kg/mm) | ASTM D-470                  |
| Taber Loss (1000 rev)   | 0.0012 (34)    | oz (mg)       | ASTM D-3389 (H18, 1000g)    |
| T <sub>m</sub> (by DSC) | 275 (135)      | °F (°C)       | Lubrizol Advanced Materials |
| T <sub>g</sub> (by DSC) | -56 (-49)      | °F (°C)       | Lubrizol Advanced Materials |

- Prior to testing samples were conditioned at 23°C for 48 hours.
- Based on extruded sheet (30 mils).
- Listed values are "typical (average) values" and should / cannot be applied for specification purposes.

### Supply Form and Standard Packaging

- ESTANE® 54640 TPU is supplied in pellet form and packaged in 50 lb bags or 1000 lb boxes.

### Material Preparation

- Prior to processing, ESTANE® 54640 TPU must be dried at 220°F (104°C) for 2-4 hours.
- It is recommended to dry the material in a desiccant type dryer. Target dew point should be -40°C.
- Depending on the applied processing technique, the maximum moisture level should be 0.02%.

### Processing Conditions

- ESTANE® 54640 TPU can be processed on any conventional extruder.

The Lubrizol Corporation ("Lubrizol") hopes that you have found the information provided helpful, but you are cautioned that this material, including any prototype formulas, is for informational purposes only and you are solely responsible for making your own assessment of appropriate use of the information. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAWS, LUBRIZOL MAKES NO REPRESENTATIONS, GUARANTEES, OR WARRANTIES (WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE), INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR REGARDING THE COMPLETENESS, ACCURACY, OR TIMELINESS OF ANY INFORMATION. Lubrizol does not guarantee how the materials referenced herein will perform in combination with other substances, in any methods, conditions, or processes, with any equipment, or in non-laboratory environments. BEFORE COMMERCIALIZATION OF ANY PRODUCT CONTAINING THESE MATERIALS, YOU SHOULD THOROUGHLY TEST SUCH PRODUCT, INCLUDING HOW THE PRODUCT IS PACKAGED, TO DETERMINE ITS PERFORMANCE, EFFICACY, AND SAFETY. You are solely responsible for the performance, efficacy, and safety of any products you manufacture. Lubrizol shall not be liable, and you shall assume all risk and responsibility for, any use or handling of any material. Any claims may not be approved in all jurisdictions. Any entity making claims related to these products is responsible for complying with local laws and regulations. Nothing contained herein is to be considered as permission, recommendation, or inducement to practice any patented invention without permission of the patent owner, and it is your sole responsibility to determine if any issues related to patent infringement of any component or combination of components relating to the information provided exists. You acknowledge and agree that you are using the information provided herein at your own risk. If you are dissatisfied with the information provided by Lubrizol, your exclusive remedy shall be to not use the information.

© 2022 The Lubrizol Corporation.

All rights reserved. All marks are the property of The Lubrizol Corporation.



<http://go.lubrizol.com/EP>

**Recommended Starting Extrusion Temperature Profile:**

|                       | °F/°C          |
|-----------------------|----------------|
| <b>Zone 1</b>         | <b>340/171</b> |
| <b>Zone 2</b>         | <b>350/177</b> |
| <b>Zone 3</b>         | <b>360/182</b> |
| <b>Zone 4</b>         | <b>370/188</b> |
| <b>Adapter (5)</b>    | <b>370/188</b> |
| <b>Die Zone 1 (6)</b> | <b>370/188</b> |
| <b>Die Zone 2</b>     | <b>370/188</b> |

Melt Temp. Mid-Range: 365°F/185°C  
Screen Pack Recommendation: 20/40/80/20

**Application Information: High Performance Film & Sheet**

| Properties                              | Value (Metric) | Unit | Test Method |
|---|----------------|------|-------------|
| <b>Tensile Set (200% elongation)</b>    | 14             | %    | ASTM D-412  |
| <b>Volume Swell in Water (24h/23°C)</b> | 1.3            | %    | ASTM D-471  |

**For further information refer to Lubrizol Advanced Materials processing guides.**

The Lubrizol Corporation ("Lubrizol") hopes that you have found the information provided helpful, but you are cautioned that this material, including any prototype formulas, is for informational purposes only and you are solely responsible for making your own assessment of appropriate use of the information. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAWS, LUBRIZOL MAKES NO REPRESENTATIONS, GUARANTEES, OR WARRANTIES (WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE), INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR REGARDING THE COMPLETENESS, ACCURACY, OR TIMELINESS OF ANY INFORMATION. Lubrizol does not guarantee how the materials referenced herein will perform in combination with other substances, in any methods, conditions, or processes, with any equipment, or in non-laboratory environments. BEFORE COMMERCIALIZATION OF ANY PRODUCT CONTAINING THESE MATERIALS, YOU SHOULD THOROUGHLY TEST SUCH PRODUCT, INCLUDING HOW THE PRODUCT IS PACKAGED, TO DETERMINE ITS PERFORMANCE, EFFICACY, AND SAFETY. You are solely responsible for the performance, efficacy, and safety of any products you manufacture. Lubrizol shall not be liable, and you shall assume all risk and responsibility for, any use or handling of any material. Any claims may not be approved in all jurisdictions. Any entity making claims related to these products is responsible for complying with local laws and regulations. Nothing contained herein is to be considered as permission, recommendation, or inducement to practice any patented invention without permission of the patent owner, and it is your sole responsibility to determine if any issues related to patent infringement of any component or combination of components relating to the information provided exists. You acknowledge and agree that you are using the information provided herein at your own risk. If you are dissatisfied with the information provided by Lubrizol, your exclusive remedy shall be to not use the information.

© 2022 The Lubrizol Corporation.  
All rights reserved. All marks are the property of The Lubrizol Corporation.



<http://go.lubrizol.com/EP>