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# SILICONE MASSIF

## SOLID SILICONE RUBBER - ESTSIL

Technical data sheet



European Sealing Technology - Industrial sealing solutions

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# Solid Silicone Rubber for Extrusions and Mouldings

Grades: ESTSIL40 - 50 - 60 - 70 - 80 | -60°C to 230°C (250°C intermittent)

## Availability

The ESTSIL range of silicone rubbers is available as mouldings and profile extrusions, which can be jointed or self-adhesive backed. The source sheet identifies oven door seals and gaskets among typical applications and states suitability for use in the food and beverage industry. A range of standard colours, including transparent, is available.

## Specifications

The source sheet states that translucent, white, blue and red iron oxide variants contain only ingredients listed by the US FDA under 21 CFR 177.2600. It also states compliance with FAR 25 / JAR 25 / CS 25 Appendix F, Part 1, (a)(1)(iv) and (a)(1)(v) horizontal flammability tests.

## General characteristics

| Property                    | Value                                                 | Test method    |
|-----------------------------|-------------------------------------------------------|----------------|
| Brittle point               | -80°C (-112°F)                                        | ASTM D746      |
| Limiting Oxygen Index       | 24.0 %                                                | BS 2872 Part 1 |
| Thermal conductivity        | 0.24 W.m-1.K-1                                        | VDE 0304       |
| Radiation resistance        | >10 <sup>5</sup> Grays (10 <sup>7</sup> Rads) typical | -              |
| Dielectric strength         | 23 kV.mm-1                                            | VDE 0303       |
| Dielectric constant         | 2.9                                                   | VDE 0303       |
| Dissipation factor @ 50 c/s | 3 x 10 <sup>-4</sup>                                  | VDE 0303       |
| Volume resistivity          | 3 x 10 <sup>15</sup> Ohm.cm                           | VDE 0303       |

## Environmental resistance

Silicone rubber products have excellent resistance to ozone, oxidation, ultraviolet light, corona discharge, cosmic radiation, ionising radiation and weathering in general.



## Mechanical properties - ESTSIL40 / ESTSIL50

| Property                     | Units   | 40 spec   | 40 typ. | 50 spec   | 50 typ. | Test method                             |
|------------------------------|---------|-----------|---------|-----------|---------|-----------------------------------------|
| Hardness                     | Shore A | 40 ±5     | 40      | 50 ±5     | 54      | ASTM D2240 / DIN 53505                  |
| Tensile strength             | MPa     | 6.0 min.  | 7.0     | 6.5 min.  | 8.0     | BS ISO 37 / DIN 53504 / ASTM D412       |
| Tensile strength             | psi     | 870 min.  | 1015    | 942 min.  | 1160    | BS ISO 37 / DIN 53504 / ASTM D412       |
| Elongation to failure        | %       | 300 min.  | 450     | 280 min.  | 370     | BS ISO 37 / DIN 53504 / ASTM D412       |
| Tear strength                | N/mm    | 8.5 min.  | 10.2    | 10.0 min. | 12.8    | BS ISO 34-1 method C / ASTM D624 die C  |
| Tear strength                | lb/in   | 48.5 min. | 58.3    | 57.0 min. | 81.1    | BS ISO 34-1 method C / ASTM D624 die C  |
| Compression set 24 h @ 150°C | %       | 35 max.   | 25      | 30 max.   | 15      | BS 903 pt A6 type B / DIN 53517 type II |
| Compression set 22 h @ 300°F | %       | 35 max.   | 22      | 30 max.   | 16      | ASTM D395 method B type 2               |



## Mechanical properties - ESTSIL60 / ESTSIL70

| Property                     | Units   | 60 spec   | 60 typ. | 70 spec   | 70 typ. | Test method                             |
|------------------------------|---------|-----------|---------|-----------|---------|-----------------------------------------|
| Hardness                     | Shore A | 60 ±5     | 60      | 70 ±5     | 70      | ASTM D2240 / DIN 53505                  |
| Tensile strength             | MPa     | 7.0 min.  | 7.9     | 7.0 min.  | 7.6     | BS ISO 37 / DIN 53504 / ASTM D412       |
| Tensile strength             | psi     | 1015 min. | 1146    | 1015 min. | 1150    | BS ISO 37 / DIN 53504 / ASTM D412       |
| Elongation to failure        | %       | 280 min.  | 340     | 200 min.  | 300     | BS ISO 37 / DIN 53504 / ASTM D412       |
| Tear strength                | N/mm    | 12.5 min. | 14.2    | 12.5 min. | 14.4    | BS ISO 34-1 method C / ASTM D624 die C  |
| Tear strength                | lb/in   | 71.4 min. | 90.3    | 71.4 min. | 91.4    | BS ISO 34-1 method C / ASTM D624 die C  |
| Compression set 24 h @ 150°C | %       | 30 max.   | 13      | 30 max.   | 9       | BS 903 pt A6 type B / DIN 53517 type II |
| Compression set 22 h @ 300°F | %       | 30 max.   | 10      | 30 max.   | 10      | ASTM D395 method B type 2               |



## Mechanical properties - ESTSIL80

| Property                     | Units   | 80 specification | 80 typical | Test method                             |
|------------------------------|---------|------------------|------------|-----------------------------------------|
| Hardness                     | Shore A | 80 $\pm$ 5       | 80         | ASTM D2240 / DIN 53505                  |
| Tensile strength             | MPa     | 5.5 min.         | 7.8        | BS ISO 37 / DIN 53504 / ASTM D412       |
| Tensile strength             | psi     | 798 min.         | 1131       | BS ISO 37 / DIN 53504 / ASTM D412       |
| Elongation to failure        | %       | 200 min.         | 300        | BS ISO 37 / DIN 53504 / ASTM D412       |
| Tear strength                | N/mm    | 10.0 min.        | 13.2       | BS ISO 34-1 method C / ASTM D624 die C  |
| Tear strength                | lb/in   | 57.1 min.        | 83.2       | BS ISO 34-1 method C / ASTM D624 die C  |
| Compression set 24 h @ 150°C | %       | 30 max.          | 19         | BS 903 pt A6 type B / DIN 53517 type II |
| Compression set 22 h @ 300°F | %       | 30 max.          | 19         | ASTM D395 method B type 2               |

### Source note

Other information on physical properties and industry-specific testing is stated as available on request in the source sheet.