

## EVOPRENE™ SUPER G Thermoplastic Elastomer (TPE) Compounds



Evoprene™ Super G compounds are high performance SEBS-based TPE materials. They are formulated with a special resin modifier which increases the size of the end blocks. They are also compounded in a special way to ensure maximum dispersion of the various ingredients. The larger end blocks increase the glass transition temperature (Tg) providing two major practical advantages over regular SEBS-based compounds: improved heat resistance and improved recovery properties. The improved heat resistance raises the service temperature over regular SEBS-based grades by 10-15 deg C (18-25 deg F) and improves injection moulding cycle times by allowing the parts to be de-moulded at a higher temperature without distortion. The improved recovery properties, as measured by compression set, provide much better sealing characteristics as explained overleaf. These compounds do need higher processing temperatures for best results.

### EVOPRENE™ SUPER G

*Evoprene™ Super G compounds have excellent heat aging properties, even at 150°C (300°F). Full technical details are available.*

| Units<br>Test Method               | Hardness<br>Shore A<br>Degrees<br>ISO<br>868 | Specific<br>Gravity<br>g/cm <sup>3</sup><br>ISO<br>2781 | M-S<br>Flow<br>Kg/cm <sup>2</sup><br>AG | Tensile<br>Strength<br>MPa<br>ISO<br>37 | Elongation<br>@ Break<br>%<br>ISO<br>37 | Modulus<br>100%<br>MPa<br>ISO<br>37 | Tear<br>Strength<br>KN/m<br>ISO<br>34-B | Compression Set |              |              |
|------------------------------------|--|---|---|---|---|-------------------------------------|---|-----------------|--------------|--------------|
|                                    |  |   |   |   |   |                                     |   | 72h 22C         | 22h 70C      | 22h 100C     |
|                                    |  |   |   |   |   |                                     |   | %<br>ISO 815    | %<br>ISO 815 | %<br>ISO 815 |
| Opaque <b>Evoprene Super G 946</b> | 29   | 1.12  | 17                                      | 3.5                                     | 450                                     | 0.7                                 | 13                                      | 10              | 17           | 37           |
| Opaque <b>Evoprene Super G 947</b> | 36   | 1.08  | 19                                      | 5.5                                     | 390                                     | 1.1                                 | 18                                      | 12              | 23           | 34           |
| Opaque <b>Evoprene Super G 948</b> | 44   | 1.08  | 15                                      | 7.4                                     | 510                                     | 1.4                                 | 20                                      | 12              | 18           | 31           |
| Opaque <b>Evoprene Super G 949</b> | 54   | 1.09  | 16                                      | 7.7                                     | 575                                     | 2.5                                 | 24                                      | 14              | 21           | 33           |
| Opaque <b>Evoprene Super G 931</b> | 61   | 1.09  | 14                                      | 10.0                                    | 515                                     | 2.6                                 | 30                                      | 15              | 23           | 35           |
| Opaque <b>Evoprene Super G 932</b> | 71   | 1.10  | 19                                      | 12.3                                    | 490                                     | 4.0                                 | 35                                      | 18              | 24           | 39           |
| Opaque <b>Evoprene Super G 934</b> | 76   | 1.09  | 19                                      | 14.4                                    | 460                                     | 3.2                                 | 37                                      | 20              | 26           | 44           |

### Comoulding & Coextrusion with PP

Evoprene™ Super G grades comould and coextrude readily with PP. The bond strength is excellent leading to cohesive failure. When injection moulding both insert or comoulding techniques are possible though as always comoulding is preferred for ultimate bond strength.

### FOOD CONTACT APPLICATIONS

With the appropriate stabiliser package, Evoprene™ Super G compounds can be used in food contact applications requiring approved ingredients according to FDA or EU regulations. It is the responsibility of the end-user to carry out appropriate tests such as global migration to ensure suitability.

For more information, please see the "Evoprene™ General Information" sheet.

Need more information? Visit [www.alphagary.com](http://www.alphagary.com) or send us an email at [enquiries@alphagary.com](mailto:enquiries@alphagary.com) or call:

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Evoprene™ Super G is an SEBS based compound range with resin modifier offering very low compression set, improved tensile strength and reduced cycle times.

- Lowest room temperature compression set of any TPE
- Service temp from -60 to +140°C
- Tensile strength significantly increased
- Moulding cycle times reduced
- Extrusion finish improved
- High electrical resistance
- Based on food-approved ingredients
- Excellent bond strength with PP
- Hardness range: 29 to 76 shore A

Additional Information about:

- Material Selection
- Processing
- Mould Shrinkage
- Chemical Resistance
- Packaging & Labeling

**AlphaGary**  
Evoprene™  
25 Years of  
Know-How!

can be obtained by visiting [www.alphagary.com](http://www.alphagary.com), emailing us at [enquiries@alphagary.com](mailto:enquiries@alphagary.com), or contacting one of our offices

Each customer or user must conduct its own studies to check for suitability for the intended end use.

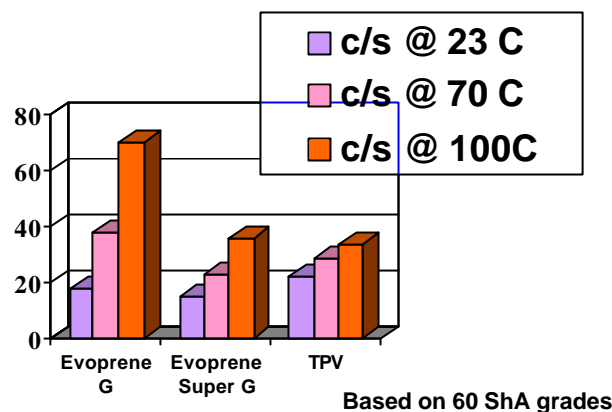
## EVOPRENE™ SUPER G

One of the special features of the Evoprene™ Super G range is the good recovery performance especially at room temperature but also at 70 and 100°C. This is usually measured by compression set or stress relaxation.

### TEST METHODOLOGY: COMPRESSION SET

In compression set testing, a 6 to 6.5mm thick sample is held under 25 percent compression for a period of time (typically 22 or 72 hours) at a specified temperature (e.g. 22, 70 or 100°C). After removing the compressive force the sample is allowed to recover for 30 minutes. The compression set is a measure of how much recovery then takes place. The lower the figure, the better the recovery.

The compression set properties at 70 and 100°C match those of similar hardness TPV compounds. However, at room temperature, Evoprene™ Super G grades perform much better.

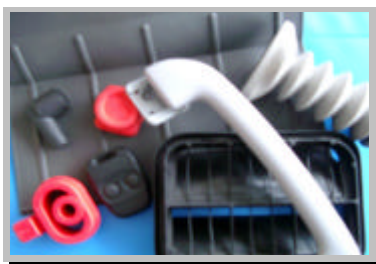


The graph above compares unfilled Evoprene™ G, Evoprene™ Super G and a commercially available TPV compound, all around 60-65 ShA. The compression set of the Evoprene™ Super G matches that of the TPV compound at the higher temperature but shows that at room temperature Evoprene™ Super G has much better recovery properties.

### TEST METHODOLOGY: STRESS RELAXATION

In the stress relaxation test, the sample is again compressed but the force required to hold it in place is measured. This is measured at timed intervals and a plot of the decay in force needed for compression is plotted against time (usually log time). This provides a good measure of the longer-term performance for areas such as sealing.

The excellent recovery properties of the Evoprene™ Super G grades means there is much less tendency to “neck” than other types of TPE. They are, therefore, very good for many sealing applications and dust covers, straps, etc. where the compound has to be stretched and then recover without deforming.



Evoprene™ Super G grades also exhibit up to 20% improvement in **tensile strength** over regular Evoprene™ G SEBS grades increasing the opportunity to meet specifications for vulcanised rubbers.

### PROCESSING EVOPRENE™ SUPER G

Molding and extrusion are very easy with Evoprene™ Super G compounds. Temperatures at the front of the barrel should be increased by 20-30 deg C (35-55 deg F) over regular SEBS-based compounds. It should be noted that these compounds have a characteristic odor when processed which will fade away over time. Suggested processing conditions and troubleshooting guides are available upon request.

**With the appropriate stabiliser system selected, Evoprene™ Super G compounds are suitable for certain types of applications in the food contact, toys and medical device markets. Evoprene™ Super G 948 and 932 have been tested and approved to USP Class VI pharmacopoeia standard and the other grades are formulated to meet this level of approval. They also perform well under ETO, gamma and steam sterilization. However these grades do have a noticeable odour and it is important for customers to carry out their own tests to ensure suitability.**