GE Silicones

SE860/SE861 TUFEL®

High Tear Strength
Translucent Silicone Rubber Compounds

Product Description

The TUFEL System is based on a patented silicone rubber technology which provides high tear strength, tight surface cure and translucency in extended and molded parts. SE860 and SE861 compounds are 63 durometer silicone rubber compounds.

SE860 and SE861 TUFEL silicone rubber compounds have been used to produce extruded, molded and calendered parts with a high degree of toughness. SE860 silicone rubber compound complies with FDA regulation 21CFR 177.2600 (rubber articles intended for repeated food contact).

Key Performance Properties

- High tear strength
- Tight surface cure/non-blooming cure
- Processing flexibility

Typical Properties Data

Typical Properties of Uncured Compound

Property	SE860	SE861
Specific Gravity	1.15 - 1.21	1.15 - 1.21
Appearance	Translucent	Translucent
Polymer Classification (ASTM D-1418)	VMQ	VMQ

The following typical data exhibits the cure profile of SE860 silicone rubber compound catalyzed with CA-2 curing agent and SE861 silicone rubber compound catalyzed with CA-4 curing agent. CA-2 curing agent is typically used for hot air vulcanization and molding techniques requiring a short scorch time. CA-4 curing agent is typically used for molding processes requiring longer mold and slower scorch times.

Formulation	Parts	Parts
SE860	99	
SE861		99
CA-2	1	
CA-4		1

Rhelological Profile - Monsanto Rheometer Model 100 with 3° arc @ 177C (350F)

Minimum torque	3-8	3-8
T1, minutes	0.1-0.4	0.4-1.0
7 minute torque	45-65	45-65

Typical Properties of Cured TUFEL Silicone Rubber Compound

The following properties were obtained on compression molded 0.075 inch ASTM sheets of SE860 and SE861 TUFEL silicone rubber compounds catalyzed as indicated.

Formulation	Parts	Parts
SE860	99	
SE861		99
CA-2	1.0	
CA-4		1.0

Typical Physical Properties
Press Cure - 10 minutes @ 177C (350F)

ASTM METHOD			
D-2240	Hardness, Durometer A	67	63
D-412	Tensile Strength, psi	1300	1300
	MPa	9.0	9.0
D-412	Elongation, %	600	700
D-624	Tear Resistance, Die B, pi	250	250
	kN/m	44	44
D-412	Tensile Modulus @ 250% Elongation, psi	700	700
	kN/m	4.8	4.8

Post Cure - 2 hours @ 177C (350F)

D-2240	Hardness, Durometer A	67	63
D-412	Tensile Strength, psi	1300	1300
	MPa	9.0	9.0
D-412	Elongation, %	400	700
D-624	Tear Resistance, Die B, pi	250	250
	kN/m	44	44
D-412	Tensile Modulus @ 250% Elongation, psi	700	700
	kN/m		3.4
	Compression Set, % 22 hrs. @ 150C (300F)	40	40

INSTRUCTIONS FOR USE

CA-2 curing agent contains the crosslinking agent which reacts with the base materials to form SE860 and SE861 TUFEL silicone rubber compounds. A sufficient quantity is provided with the base material in the original container, but additional quantities may be utilized for speeding the cure cycle time.

CA-4 (Curing Agent):

CA-4 curing agent is similar to CA-2 curing agent except that a 99:1 ratio of base to CA-4 curing agent provides a rate of cure slower than CA-2 curing agent in the same proportions at given temperatures. CA-4 curing agent is best suited for molding wherein the base/CA-2 combination has been found to cause scorch.

CA-2 and CA-4 curing agents can be blended to provide intermediate rates of cure.CA-4 curing agent is available as an alternative component.SE860/861 silicone rubber compounds should be thoroughly freshened on a two roll rubber mill before the addition of CA-2 or CA-4 curing agents.

SE860/861 TUFEL® silicone rubber compounds may be blended to achieve intermediate durometers. After these products are blended, add CA-2 or CA-4 curing agents plus recommended pigments.

Additional fillers, process aids, or some pigments may cause cure variation.

Caution must be exercised to keep the mill and compounds as cool as possible, i.e., under 30C (86F) while mixing. Crosslinking is initiated at higher temperatures. After addition of CA-2 or CA-4 curing agent, structure will begin. Structure is dependent upon time, process and storage temperatures and the viscosity of the compounds. In general, significant structure will develop within 2 to 5 days at room temperature using CA-2 curing agent. Structuring can be slowed by placing the catalyzed mixture in a freezer. If the product has structured, it can be re-milled before final fabrication to reduce the degree of structure. CA-4 curing agent exhibits a range of 2-3 weeks shelf life but is determined by each fabricators processability and rheological requirements.

Specifications

Typical product data values should not be used as specifications. Assistance and specifications are available by contacting GE Silicones at 800/255-8886.

Handling and Safety

Material Safety Data Sheets are available upon request from GE Silicones. Similar information for solvents and other chemicals used with GE products should be obtained from your suppliers. When solvents are used, proper safety precautions must be observed.

FOOD USE STATUS

SE860 silicone rubber compound can be used in food contact where FDA regulation 21CFR177.2600 applies.

Processing of SE860 silicone rubber compound into finished articles will affect the extractability of its components. It is the responsibility of the manufacturer of the finished articles to insure that the performance standards specified in the regulations are met. For SE860 silicone rubber compound, post cure will reduce the amount of extractibles.

SE861 silicone rubber compound is not suitable for FDA regulated applications.

Storage & Warranty Period

The warranty period is 4 months from date of shipment from GE Silicones if stored in the original unopened container at 35C (95F).

Availability

GE Silicone products may be ordered from GE Silicones, Waterford, N.Y. 12188, the GE Silicones sales office nearest you or where appropriate, an authorized GE Silicones product distributor.

Government Requirement

Prior to considering use of a GE Silicones' product in fulfilling any Government requirement, please contact the Government and Trade Compliance office at 413-448-4624.

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