



G E O[®]
SPECIALTY CHEMICALS

MARKETED BY
**HARWICK STANDARD
DISTRIBUTION CORPORATION**
60 S. Seiberling Street • Akron, Ohio 44305

Product Data

VUL-CUP[®] 40SI Organic Peroxide Vulcanizing Agent for Silicone Rubber

VUL-CUP[®] 40SI organic peroxide is especially processed to efficiently cross-link silicone rubber. **Vul-Cup[®]** is a highly efficient, scorch resistant, low odor peroxide with broad utility as a vulcanizing agent for elastomers and plastics. Compounds containing **Vul-Cup[®]** may be extruded at higher rates because of the higher decomposition temperatures. Exothermic decomposition begins at approximately 194°F (90°C) and full decomposition occurs within minutes above 362°F (183°C).

Vul-Cup[®] 40SI is a free flowing, off white powder that consists of approximately 40% active bisperoxide supported on Burgess KE Clay. **Vul-Cup[®]** is a mixture of the *para* and *meta* isomers of an *a, a'*-bis(tert-butylperoxy)-diisopropylbenzene.

General Sales Specifications

Test Methods are available on request

Assay, Peroxide Content, %	39.5 - 41.5
Fineness (Wet Sieve)	1.0 maximum
Appearance	Free of foreign material

Typical Properties

Specific gravity at 25/25°C	1.5
Bulk density (lb./cu. ft.)	26
Melting point, °F (°C)(a)	113 - 131 (32 - 38)
(a) For the Vul-Cup only	

Outstanding Characteristics

Vul-Cup[®] 40SI is used to cross-link silicone rubbers. The use of **Vul-Cup[®]** stems from its ability to decompose and form free radicals, which, in turn promotes cross-linking. Peroxide cures result in cross-links of strong carbon to carbon covalent bonds between adjacent polymer chains.

Peroxide vulcanizates exhibit little or no added color, are stable to oxidation, and exhibit higher compression set resistance than sulfur cured vulcanizates. Complete information about its utility can be found in Technical Bulletins ORC-101 (Fundamentals of Crosslinking) and ORC-301M (Vul-Cup[®] Organic Peroxide Vulcanizing Agent and Crosslinking Agent).

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Soluble Vul-Cup® organic peroxide disperses readily in polyethylene and copolymers of ethylene, natural and synthetic rubber compounds, silicone gum, and polyester resins. It is quite soluble in aliphatic, aromatic and ketone solvents, but less soluble in alcohols. It is insoluble in water.

Typical Uses

Vul-Cup® 40SI is highly efficient, offering the compounder good value when crosslinking silicone rubber parts in molding operations. Because of **Vul-Cup® 40SI's** efficiency, less peroxide is needed to attain the same physical properties as compared to formulations using other peroxides (see example below). Some users note improved compression set performance as well as improved retention of properties after air aging.

	Typical Performance	
	1	2
Silicone Base B	100	100
Varox ^(a) DBHP-50	0.8	---
Vul-Cup 40SI	---	0.61
Cure Conditions: 15 min., 177°C (350°F)		
100% modulus, MPa	0.73	0.71
200% modulus, MPa	1.30	1.27
300% modulus, MPa	2.07	2.05
Tensile strength, MPa	8.01	8.36
Elongation at break, %	696	701
Shore A hardness	40	38

(a) Varox crosslinking agent is a trademark of R. T. Vanderbilt Co., Inc., Norwalk, CT.

Available Forms: Drum, fiber, 25 gal (88 lbs. net wt.)

See MSDS for additional property and handling information.

Storage and Inventory Control

It is strongly recommended that strict control of inventory be observed at all time, taking care that the oldest material is used first. Keep container closed when not in use. Store in a cool, dry, well ventilated area. Do not store near flammable materials. Avoid storing product near incompatible materials (see MSDS Sections 7 and 10). Keep away from heat, flame, sparks and other ignition sources. Do not store in direct sunlight.

Tests have shown that **Vul-Cup® 40SI** does not lump or cake below 125°F (52°C). Above this temperature, however, the active bisperoxide component will melt. On cooling, the bisperoxide will solidify and may form lumps that are difficult to disperse. To avoid agglomeration, store below 95°F (35°C).

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Safety Guidelines

Commercial use of **Vul-Cup® 40SI** requires that it decompose at a temperature dependent rate. Vul-Cup® can be stored safely up to 149°F, (65°C) but will lose assay/efficiency if stored for prolonged periods at this temperature. However, the handling temperature of **Vul-Cup® 40SI** should never exceed 149°F (65°C) because above this temperature the rate of thermal decomposition and heat evolution can increase rapidly and violent decomposition may occur.

Product Safety

Read and understand the Material Safety Data Sheet (MSDS) before using this product.

North American Regulatory Compliance

VUL-CUP® 40SI Organic Peroxide is in compliance with requirements of the U.S. Food and Drug Administration (FDA) for use as specified in the Code of Federal Regulations, Title 21, subject to the limitations and requirements of each regulation under the following Section(s):

None

European Regulatory Compliance

VUL-CUP® 40SI Organic Peroxide is in compliance with the requirements of the Bundesgesundheitsamt für Verbraucherschutz und Veterinärmedizin (BgVV) of the Federal Republic of Germany for use in food packaging and food processing operations as specified in the BgVV Recommendations, under the following Chapters and subject to the provisions therein:

None

For additional information, and to place an order or sample request, call (888) 519-3883.

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