H-1613 Silicone Acrylate Epoxy Copolymer

(Toughening and Internal Stress Release Additive)

Product Description

H-1613 is a typical core–shell structured toughening microsphere.
It consists of an acrylate/epoxy-functional shell and a silicone elastomer core.
This unique structure significantly releases internal stress and improves toughness without adversely affecting the material's Tg (glass transition temperature), modulus, or rigidity.

The silicone elastomer core effectively absorbs energy and arrests crack propagation when the material is subjected to impact.
Due to the silicone elastomer's low glass transition temperature, excellent aging resistance, and intrinsic flame retardancy, polymers incorporating H-1613 provide outstanding low-temperature toughness while maintaining high-temperature resistance, flame retardancy, and durability.

Features

- Core–shell structure
- No or minimal effect on material modulus and rigidity
- No or minimal effect on glass transition temperature
- Especially suitable for low-temperature toughening (core Tg ≈ –60 °C)
- Silicone elastomer core provides better weather resistance than polybutadiene or SBR
- Acrylate shell ensures good compatibility with various systems
- Significantly enhances impact strength and toughness
- Reduces internal stress
- Does not compromise flame retardancy
- Improves system thixotropy

Typical Properties

(The following data are for reference only; please contact us for product specifications.)

Property	Unit	Value
Appearance	—	White free-flowing powder
Volatile content	wt %	< 1.0
Specific gravity (25 °C)	g/cm³	1.01
Refractive index	—	1.47
Bulk density	g/cm³	0.30
Average particle size	μm	0.50

Applications

- Toughening of epoxy adhesives, hot-melt adhesives, and similar materials
- Improves mechanical strength, reduces notch sensitivity, relieves internal stress, and enhances performance in thick-walled products

Application Guidelines

- Recommended dosage: 3.0–5.0 %, depending on desired final properties
- For optimal dispersion and performance, it is recommended to prepare a masterbatch or pre-mix before incorporation
- Dispersion equipment such as three-roll mills or high-shear mixers can further improve uniform distribution in viscous adhesives

Notes

- This document does not include product safety information. For the Safety Data Sheet (SDS), please contact us or our authorized distributor.
- Although H-1613 has a low dusting tendency, operators should wear masks and safety goggles when opening or handling the product.
- To achieve the best dispersion and performance, it is recommended to add H-1613 as a masterbatch or pre-dispersed solution.

Packaging

- Standard packaging: 25 kg fiber drum with inner plastic liner
- Sample packaging: 250 g plastic bag

Storage and Shelf Life

Store in tightly closed original containers at temperatures below 35 °C.
Shelf life: 12 months from the date of manufacture.