# H-1419 Silicone-Acrylate Copolymer

**Product Description**

H-1419 is a typical core-shell structured toughening agent, consisting of a silicone elastomer core and a polyacrylate shell containing carboxylic acid groups. Once dispersed in the polymer matrix, it reverts to its initial nano-scale particle size, significantly relieving internal stress and improving resistance to thermal and cold shock.

The silicone elastomer core absorbs impact energy and halts crack propagation. Thanks to the low glass transition temperature (Tg), aging resistance, and flame retardancy of the silicone core, polymers modified with H-1419 deliver excellent low-temperature toughness without compromising heat resistance, flame retardancy, chemical resistance, or aging stability.

The acrylate shell and carboxylic groups enhance compatibility, ensuring uniform dispersion, reduced agglomeration, and lower required dosage. The silicone component significantly reduces friction coefficient, improves abrasion resistance, and eliminates squeaking in frictional applications.

**Key Features**

- Core–shell structure
- Ideal for low-temperature toughening, wear resistance, and squeak elimination
- Superior weatherability compared to butadiene- or styrene-based elastomers
- Excellent compatibility of shell materials with various matrices
- Enhances thermal/cold shock resistance
- Reduces internal stress
- Does not compromise flame retardancy or chemical resistance

**Advantages**

- Easy to disperse; readily reverts to nano-size particles
- Low dosage has minimal effect on modulus of the base material

**Typical Properties**

| Property | Unit | Value |
|---|---|---|
| Appearance | – | White powder |
| Volatile content | wt% | <1.00 |
| Specific gravity (25°C) | g/cm³ | 1.01 |
| Refractive index | – | 1.41 |
| Initial particle size | μm | 0.25 |

**Applications**

Toughening agent for polyamides (nylon), PUE, and other amide/amino-based thermoplastics

**Usage Guidelines**

- Recommended dosage: 2.0–15.0%, depending on required final properties
- Dispersion method: Best dispersed using twin-screw extruder at moderate shear strength
- Alternatively, use internal mixer + single-screw extruder to blend H-1419 into the polymer

**Precautions**

- This document does not include safety information. Please request the Safety Data Sheet (SDS) from us or our authorized distributor.
- Although H-1419 is designed to be low-dusting, users should wear protective masks and safety goggles when opening or handling.
- For optimal dispersion and performance, it is recommended to pre-compound into masterbatch or masterblend before final application.

**Packaging**

- Typical: 25 kg fiber drum with inner plastic liner
- Samples: 250 g plastic bag

**Storage and Shelf Life**

- Store in original unopened packaging below 35°C in a cool, dry place.
- Shelf life: 12 months from the date of production.
- Product may still be usable after shelf life if it passes required quality tests.