H-8019 Castor Oil-Based Aliphatic Dimer Alcohol Polyol

1. Product Description

SIOResin® H-8019 is a **castor oil-based aliphatic dimer alcohol polyol** derived from renewable resources. It is a versatile polyol designed for the production of polyurethane (PUR), thermoplastic polyurethane (TPU), elastomers and polyurethane emulsions.

H-8019 provides a balanced combination of **hard-elastic performance, hydrophobicity, flexibility and durability**, making it particularly suitable for polyurethane systems requiring crack-bridging capability and resistance to hydrolysis and saponification.

With its high renewable raw material content, H-8019 is suitable for the development of high-performance polyurethane materials with an increased renewable content.

2. Key Features & Benefits

- Castor oil-based and derived from renewable resources
- Aliphatic dimer alcohol polyol
- High renewable raw material content
- Excellent hard-elastic performance
- Good crack-bridging capability
- Good hydrophobicity
- Good saponification stability
- Good flexibility and mechanical strength
- Suitable for polyurethane and TPU applications
- Suitable for polyurethane elastomers
- Suitable for polyurethane emulsions

3. Typical Applications

H-8019 is suitable for use as a reactive polyol component in polyurethane systems.

Typical applications include:

- Polyurethane elastomers
- Thermoplastic polyurethane (TPU)
- PUR coatings
- Crack-bridging coatings
- Water-resistant polyurethane coatings
- Polyurethane emulsions
- Sealants
- Flexible and hard-elastic polyurethane materials

H-8019 can be used alone or in combination with other polyols to adjust hardness, flexibility, elongation and mechanical strength.

4. Typical Properties

Property	Typical Value	Test Method
Chemical Nature	Aliphatic Dimer Alcohol	—
Appearance	Clear, colorless to yellowish liquid	—
Physical Form	Medium-viscosity liquid	—
Water Content	≤ 0.20%	DIN 51 777 T2–T4
Acid Number	≤ 0.20 mg KOH/g	DIN EN ISO 2114
Hydroxyl Value	200–215 mg KOH/g	DIN 53 240
Viscosity, Dynamic (25°C)	1,900–2,500 mPa·s	ISO 2555 (MOD.)
Color, Hazen	≤ 50	DIN ISO 6271

Note: The above values are typical values and are not intended to be used as product specifications.

5. Application & Formulation

H-8019 can be reacted with polymeric or modified isocyanates to produce polyurethane elastomers, coatings and other polyurethane materials.

For elastomer applications, H-8019 can be combined with **Polymeric MDI** or suitable MDI prepolymers. The NCO/OH ratio should be adjusted according to the desired hardness, flexibility, curing rate and mechanical properties.

As a general reference, a formulation based on **100 parts H-8019 and 50 parts Polymeric MDI**, together with a suitable moisture scavenger, can provide a hard-elastic polyurethane material with good mechanical performance.

The formulation should be optimized according to the selected isocyanate, catalyst, filler, moisture scavenger and intended application.

6. Typical Performance with Polymeric MDI

The following data are reference performance values obtained from a representative polyurethane formulation using H-8019 and Polymeric MDI.

Property	Typical Value	Test Method
Mixing Ratio (H-8019 : Polymeric MDI)	100 : 50	—
Gel Time at 23°C	Approx. 12 min	Coesfeld
Shore A, after 1 day	66	ISO 868

Property	Typical Value	Test Method
Shore D, after 1 day	24	ISO 868
Shore A, after 2 days	78	ISO 868
Shore D, after 2 days	34	ISO 868
Shore A, after 14 days	84	ISO 868
Shore D, after 14 days	40	ISO 868
Shore A, after 28 days	84	ISO 868
Shore D, after 28 days	42	ISO 868
Tensile Strength	14 MPa	ISO 527-3
Elongation at Break	122%	ISO 527-3
Tear Resistance	38 N/mm	ISO 34-1
Bending Strength	1 MPa	DIN EN ISO 178

Note: The above performance data are formulation-dependent reference values. Actual results may vary according to isocyanate type, NCO/OH ratio, catalyst, additives, fillers, processing conditions and curing conditions.

7. Storage

Store in the original, tightly sealed container in a **cool, dry and well-ventilated area**. Protect from moisture, direct sunlight and excessive heat. Reseal the container promptly after use.

8. Packaging

Standard packaging:

- **25 kg/drum**
- **200 kg/drum**

Other packaging options are available upon request.

9. Shelf Life

Recommended shelf life is **12 months** when stored unopened in the original sealed container under recommended storage conditions.

Disclaimer

The information provided in this TDS is based on our current technical knowledge and is intended for general guidance only. Actual performance depends on formulation and processing conditions. Users should conduct appropriate testing to confirm suitability for their specific application.