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TECHNICAL BULLETIN

## Silmer<sup>®</sup> Q Resins

### DESCRIPTION

**Silmer<sup>®</sup> Q Resins** are a series of MQ resins (INCI name Trimethylsiloxysilicate) which consist of tetrafunctional Q group (- silicon surrounded by four oxygen groups) endcapped with mono functional M group (- silicon with one oxygen group). These resins can vary in molecular weight and crosslinking density so that they can vary from liquid pourable resins at low molecular weight to film formers which are provided in solvent at higher molecular weights and crosslink densities.

These resins are highly condensed and due to the high crosslinking their molecular weights and viscosities are not as high as standard silicone (dimethicone) crosspolymers and so are therefore easier to handle. The lower molecular weight products are available as pourable liquids while the film formers are 70% active in isododecane.

These products are used in personal care as conditioning agents for hair care without any build up and can impart water proofing, soft powdery feel and pigment dispersion among others to color cosmetics.

### Properties of Silmer Q Resins

Product	Appearance	Actives	Viscosity	Refractive Index
Silmer <sup>®</sup> Q25	Clear water white liquid	100%	500 cps	1.404
Silmer <sup>®</sup> Q20	Clear water white liquid	100%	1000 cps	1.404
Silmer <sup>®</sup> Q12 IDD	Clear water white liquid Will form a film on dry down	70% in isododecane	20 cps	1.413
Silmer <sup>®</sup> Q9 IDD	Clear water white liquid Will form a film on dry down	70% in isododecane	40 cps	1.413

### USES AND APPLICATION

#### **Lipsticks**

Silmer Q25 and Silmer Q20 are recommended at 1-3% levels. For lip-gloss 1-10% can be used. These products provide high gloss, color enhancement, softness and non-transfer properties. They exhibit outstanding adhesion and water-resistance to provide an enduringly smooth, non-tacky product.

#### **Foundations**

Silmer Q20 is recommended at 1-5% levels. It provides much better stability to the formulation and provides a softer, more powdery feel.

#### **Eye Shadow**

Silmer Q25 is recommended at 1-5% levels. Provides soft powdery feel.

## Mascara and Eye Stay

All Silmer Q products provide good color enhancement, water proofing, pigment dispersion and film formation. Recommended use levels are 1-5%.

## Sunscreen

While all of the Silmer Q products provide improved feel, Silmer Q25 provides the best feel. Recommended use level is 1-5%. The Silmer Q products also provides waterproofing and stability to sunscreen formulations.

## Shampoo and Hair Conditioner

Silmer Q20 and Q25 are recommended. Use level is 0.3-1%. They provide excellent conditioning, wet and dry comb and do not build up on the hair over time.

This chart will help the formulator select the best MQ resin for a particular personal care application.

<b>Product Application</b>	<b>Silmer Q25</b>	<b>Silmer Q20</b>	<b>Silmer Q12 IDD</b>	<b>Silmer Q9 IDD</b>
Face Cream	✓	✓	x	x
Lip Stick	✓	✓	x	x
Body Moisturizing Stick	✓	✓	x	x
AP Stick	✓	✓	x	x
Foundation	✓	✓	✓	✓
Lip Gloss	✓	✓	✓	✓
Sun Screen	✓	x	✓	✓
Mascara	✓	✓	✓	✓
Eye Stay	✓	✓	✓	✓
Eye Shadow	✓	✓	✓	✓
2-in-1 Shampoo	✓	x	x	x
Hair Conditioner	✓	x	x	x

The pure liquid MQ resins (Silmer Q25 and Q20) when used in stick products (lipsticks, AP, etc) increase softness but keep strength (rigidity) and decreased sweating at elevated temperatures. This provides formulators with a powerful tool for creating both soft and rigid lipsticks and AP sticks. They have outstanding compatibility with personal care ingredients such as emulsifiers, waxes, natural oils/butters, sunscreens, silicones and organic emollients, pigments, pearlescents, powders and plant extract additives. Therefore they can be used in almost every application and any types of personal care products, from color cosmetics to skin care and hair care products.

Silmer Q25 or Q20 enables the formulator to partially or totally replace color dispersion solvents within water-oil or water-silicone emulsions and anhydrous color cosmetics while giving better color intensity and stability.

The highly crosslinked Silmer Q12 IDD and Silmer Q9 IDD resins can be used as replacements for standard silicone crosspolymer gels which are generally low in actives, but very high in viscosity, making them difficult to use. The Silmer Q12 IDD and Q9 IDD will impart a more solid, smooth powdery feel to formulations as well as water repellence and non-transfer properties.

## **SAFETY**

Before handling, read the specific Material Safety Data Sheet and container label for safe use, physical and health hazard information.

## **STORAGE AND SHELF LIFE**

When stored in the original, unopened containers between 10 and 40°C, **Silmer Q25 and Q20** have a shelf life of 12 months from date of manufacture.

When stored in the original, unopened containers between 10 and 40°C, **Silmer Q12 IDD and Q9 IDD** have a shelf life of 24 months from date of manufacture.

## **PACKAGING**

**Silmer® Q Resins** are available in 20kg and 200kg containers.

## **LEGAL DISCLAIMER**

Siltech Corporation believes that the information in this technical data sheet is an accurate description of the typical uses of the product. Siltech Corporation, however, disclaims any liability for incidental or consequential damages, which may result from the use of the product that are beyond its control. Therefore, it is the user's responsibility to thoroughly test the product in their particular application to determine its performance, efficacy and safety. Nothing contained herein is to be considered as permission or a recommendation to infringe any patent or any other intellectual property right.

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