MAKING COSMETICS MORE BEAUTIFUL
Kraton Polymers for Oil Modification
Kraton offer the most state-of-the-art solutions for oil modification. Our wide array of hydrogenated styrenic block copolymers (SBC) allows for highly transparent, glossy and moisture-resistant products – hallmarks of exceptional cosmetics.

Our polymers are compatible with a vast range of oils and waxes, creating endless possibilities for new uses and formulations. They may be used as gelling agent, a sole modifier, to complement other ingredients, to boost the viscosity of the oil phase and as a film former.

The Next Generation

Kraton polymers make it possible to stay ahead of evolving beauty industry trends. When blended with a wide variety of synthetic, polar, ester or natural oils, our polymers transform these oils into clear, thicker, shear thinning, thixotropic and film forming gels that meet a multitude of industry needs. These blends contribute to the stabilization of water in oil (W/O) emulsions with excellent oil retention and possess a beautiful gloss.

Benefits of Our Science

The global beauty industry uses a wide range of oils and waxes, which Kraton polymers are compatible with. Our science creates easy and uniform spreading, high gloss, gradual fragrance release and has a positive impact on water resistance – producing cosmetics that are protective, non-greasy and resistant to rinse-off.
The Science Behind the Beauty

SBC is a unique class of thermoplastic elastomers consisting of a two-phase structure of hard polystyrene endblocks and soft rubber midblocks. The polystyrene endblocks associate to form domains imparting strength, while the rubber midblock provides elasticity.

**Kraton™ G EP Polymers**
Ethylene/propylene based polymers with different molecular designs used as thickeners of paraffinic oils, allowing for the production of gels with thixotropic, shear-thinning behavior. The film forming gels may aid in creating a protective moisture barrier, resistant to rinse-off and minimizing water loss.

**Properties**
- Diblock polymers (Kraton G1701 SQR1111, Kraton G1702 SQR1111) lead to thixotropic greases (important shear thinning)
- Star polymers (Kraton MD6953, Kraton G1750 SQR1111) are thickening paraffinic oils

**Kraton™ G SEBS Polymers**
Ethylene/butylene-based polymers that solidify paraffinic oils and result in flexible, strong, solid oil gels with eventual adhesive properties and tackiness.

**Properties**
- Solidify paraffinic oils, creating cohesive oil gels
- Certain adhesive properties when diblocks are present in molecule

**Kraton™ A Polymers**
A range of polymers with unique, polar midblock structure offering excellent compatibility with natural, polar and ester oils and enable the production of clear, thickened oil or solid gels, depending on polymer concentration.

**Properties**
- Unique midblock structure
- Polarity of the midblock leads to compatibility with polar, ester and natural oils such as macadamia, jojoba, olive, almond, rice, sesame and soybean

**Kraton™ G ERS Polymers**
A range of low viscous, low hardness polymers that allow for soft, lower temperature processable gels when mixed with mineral oils.

**Properties**
- Soft rubber block leads to low hardness
- Low viscosity
- Useful in temperature sensitive formulations
Properties of Kraton Polymers in Oil Gels

Olfactory Effect

Olfactory results show that incorporating Kraton™ MD6953 in paraffinic, white oil has a significant effect on perfume persistence.

Moisturizing Effect

Corneometry results indicates that oil gels containing Kraton™ MD6953 and Kraton™ G1750 SQR1111 have a significant moisturizing effect on the upper layers of the epidermis.

Visual Aspect

Oil gels containing Kraton™ A1536 SQR1111 and Kraton MD6953 are highly transparent and glossy.

<table>
<thead>
<tr>
<th></th>
<th>Opacity*</th>
<th>Gloss*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kraton A1536 SQR1111 (7 %wt) in macadamia oil</td>
<td>0.3</td>
<td>9.2</td>
</tr>
<tr>
<td>Kraton MD6953 (8%wt) in paraffinic, white oil</td>
<td>1.1</td>
<td>9.3</td>
</tr>
</tbody>
</table>

* on scale of 0 to 10:
0 = non-opaque  10 = opaque
0 = non-glossy  10 = glossy

Visual assessment done by 20 panelists at Laboratoire d’analyse sensorielle, EBI (F).
Kraton Innovative Solutions
For Specialty Oil Gels

Delivering unparalleled science and solutions to meet the high demands and stringent needs of the cosmetics industry.

Appearance and Feel
- Crystal clear, colorless, odorless oil gels
- High gloss
- Silky, smooth texture

Stability Improvement
- Stabilization of water in oil (W/O) emulsions
- Homogeneous dispersion of particles (glitters, pigments, etc.)

Rheology Modification
- Compatibility a with wide range of oils and waxes
- Viscosity boost of oil phase

Film Formation
- Easy and uniform spreading
- Moisturizing effect
- Positive impact on water resistance: protective, non-greasy, resistant to rinse-off and moisture
- Gradual fragrance release
ABOUT KRATON CORPORATION

Kraton Corporation (NYSE: KRA) is a leading global producer of styrenic block copolymers, specialty polymers and high-value performance products derived from pine wood pulping co-products. Kraton’s polymers are used in a wide range of applications, including adhesives, coatings, consumer and personal care products, sealants and lubricants, and medical, packaging, automotive, paving and roofing applications. As the largest global provider in the pine chemicals industry, the company’s pine-based specialty products are sold into adhesive, road and construction and tire markets, and it produces and sells a broad range of performance chemicals into markets that include fuel additives, oilfield chemicals, coatings, metalworking fluids and lubricants, inks and mining. Kraton offers its products to a diverse customer base in numerous countries worldwide.

GLOBAL FOOTPRINT

- Global Headquarters
- Innovation/Technology Centers
- Offices
- Manufacturing - Chemical Segment
- Manufacturing - Polymer Segment

Kraton Corporation (NYSE: KRA)
For more information, visit our website at www.kraton.com or email info@kraton.com

LOCATIONS

U.S.A. HEADQUARTERS
Houston, Texas

ASIA PACIFIC
Shanghai, China

EUROPE, MIDDLE EAST, AFRICA
Almere, The Netherlands

SOUTH AMERICA
Paulinia, Brazil

INDIA
Mumbai, India

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