BNPoly® UV Crystals is a range of composite materials based on ultra soft Boron Nitride and Titanium Dioxide. Boron Nitride is texturizing powder with good hiding power, excellent compressibility and lubricious silky texture. BNPoly® UV Crystals are platelet shaped particles where hexagonal boron nitride crystal is coated with double layer of ultrafine Titanium Dioxide and sealed with a polymer.

As BNPoly® UV Crystals are platelet shaped, they adhere well on the skin and provide long lasting UV-protection. They offer lower coefficients of friction resulting in a lubricious feel and silky texture. Upon application they create dielectric ceramic effect, which provides sheen on the skin.

**Trade Name** | **INCI Name**
--- | ---
BNPoly® UV Crystal TR 14 | Boron Nitride (and) Titanium Dioxide (and) Dimethicone (and) Isododecane (and) Ethylene/VA Copolymer
BNPoly® UV Crystal TR 22 | Boron Nitride (and) Titanium Dioxide (and) Dimethicone (and) Isododecane (and) Ethylene/VA Copolymer
BNPoly® UV Crystal TR 35 | Boron Nitride (and) Titanium Dioxide (and) Dimethicone (and) Isododecane (and) Ethylene/VA Copolymer
BNPoly® UV Crystal TR 45 | Boron Nitride (and) Titanium Dioxide (and) Dimethicone (and) Isododecane (and) Ethylene/VA Copolymer

<table>
<thead>
<tr>
<th>Trade name</th>
<th>Crystal Size of TiO2</th>
<th>UVA Protection</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>BNPoly® UV Crystal TR 14</td>
<td>14 nm</td>
<td>Low</td>
<td>Most transparent</td>
</tr>
<tr>
<td>BNPoly® UV Crystal TR 22</td>
<td>22 nm</td>
<td>Medium</td>
<td>Slightly opaque</td>
</tr>
<tr>
<td>BNPoly® UV Crystal TR 35</td>
<td>35 nm</td>
<td>High</td>
<td>Opaque</td>
</tr>
<tr>
<td>BNPoly® UV Crystal TR 45</td>
<td>45 nm</td>
<td>Maximum</td>
<td>Opaque with high coverage</td>
</tr>
</tbody>
</table>

**Benefits**
- efficient UV-protection
- ceramic effect
- photostable
- soft and creamy texture
- high lubricity

**Properties**
- platelet shape
- composite structure
- particle size 10-20 microns
- heat stable
- photostable
BNPoly® UV

Application Areas

Skin and Sun Care
BNPoly® UV Crystals are ideal for all day care applications, which require SPF claim as well as in products where UVA-protection is necessary for anti-age purposes. They allow new softer way to introduce ultrafine Titanium Dioxide into the applications without compromising highly sophisticated textures. Upon application they provide skin illuminating sheer due to their platelet structure as well as good skin adherence with longer lasting UV-protection.

Colour Care
In colour care BNPolys® UV Crystals are used in powders, foundation and make-up bases where UV-protection is desired. In powder application it provides softness and coverage as well as improves the skin adherence of the formulation. In foundation and make-up bases it acts as UV-protection booster and provides ceramic effect with skin illuminating properties. They are also ideal for demanding multi-purpose products such as BB and CC creams.

Formulating
BNPoly® UV Crystals are easy to formulate with as they do not required any specific operations. As they are composites they are stable to heat and mechanical power like high shear mixing and homogenization.

Emulsions
BNPoly® UV Crystals are added to emulsions after emulsification together with powder phase or predispersed into an oil if other materials require this.
Typical use level: 1-10%

Powders
BNPoly® UV Crystals should be added to the powder base before colour shading and binders. BNPolys® UV Crystals do not need to be grinded but if grinding is required it is not harmful for BNPolys® UV Crystals.
Typical use level: 5-20%

Packaging: 25 kg sealed aluminium bag in cardboard box

SEM picture of BNPolys® UV Crystals

BNopolyTR35 2012/05/07 L x800 100 um
BNpolUV CrysTR35 QC0505-2/2012