Oppanol®
PIB by BASF
The global all-rounder
The result: a reliable partner

Your business is as important to us as our own. For this reason, we are constantly working to create unique value propositions that will help you grow. BASF’s 75 years of experience and proven long-term commitment to PIB ensures consistent product quality and availability, giving you complete peace of mind wherever you operate in the world marketplace.

We secure supply both by adjusting our manufacturing capacities to the growing market needs and by ensuring that all our production units are back-integrated into BASF’s unique Verbund architecture. Technical service is a core part of BASF’s offering, providing a worldwide professional response to your requirements.

As the world’s leading producer of PIB, BASF offers the broadest range of polyisobutenes with different molecular weights. Medium and high molecular weight polyisobutenes are sold under the trade name Oppanol®.

Committed: Polyisobutene (PIB) is a core business for BASF, with deep integration into manufacturing and sales structures
Knowledgeable: BASF has over seventy years of experience in the manufacturing of PIB and in understanding its properties.
Global: With customers spread all over the world, the PIB team acts globally by maintaining strong and caring customer contact across all regions

DISCOVER THE WIDE RANGE OF OPPANOL®.
BASF’s Oppanol® product range is suited to enhance manufacturing processes and product effectiveness in a wide range of different applications.

It works both as a protective barrier and an adhesive. It is flexible yet mechanically stable. It can be used where exposure to sunlight is a potential risk to sealants, or where moisture needs to be kept out.

It can be used in protective films or acoustic barriers within the automotive industry or in roofing membranes within the construction industry.

Wherever it is used, Oppanol® provides quality, certainty, dependability and effectiveness. All backed by BASF’s unrivalled global support network and reputation for customer care.
Due to its unique combination of properties, Oppanol® is an ideal component for a variety of formulations. Our customers are using Oppanol® in a wide range of applications:

- Construction: insulating glass sealants and roofing membranes
- Automotive: protection films and acoustic dampening
- Medical: adhesives for plasters and ostomy bags
- Food-related: food packaging and as a component in chewing gum

Moisture barrier meets adhesion

<table>
<thead>
<tr>
<th>Oppanol® molecular weight</th>
<th>Barrier</th>
<th>Tack</th>
<th>Adhesion</th>
<th>Viscosity</th>
<th>Elasticity</th>
</tr>
</thead>
<tbody>
<tr>
<td>B 10</td>
<td>10,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B 12</td>
<td>50,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B 15</td>
<td>100,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B 50</td>
<td>500,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B 100</td>
<td>1,000,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B 200</td>
<td>5,000,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Vapor barreing and low-temperature elasticity are common to all grades of Oppanol®, giving the product several distinctive and practical characteristics.

The resinous Oppanol® grades B 10 – B 15 provide tack (stickiness) and adhesion to formulations. Rubber like characteristics are provided with increasing molecular weight.
Mix and match to achieve the perfect result

The requirements of different applications can be perfectly met by blending various grades of Oppanol®. For example, the combination of tack to different surfaces and barrier against various media like water vapor makes grades B 10–B 15 especially suitable for high-end sealant applications for insulating glass. The resulting sealant formulations are easy to apply and ensure long-term stability.

Oppanol® provides excellent tack both on smooth surfaces like glass, plastic material or polished metal and on porous surfaces like corroded metal. Grades B 10–B 15 are the perfect materials for corrosion protection preparations. Due to its cold flow, it is able to flow into pores without external impact, provides a long-lasting water barrier and repairs itself when damaged.

Practical and safe for weather-sensitive applications

In applications like electrical cables, long-term effective moisture protection and electrical insulation are critical. Due to the well-balanced barrier and flow properties, Oppanol® grades B 10–B 15 provide an excellent solution for these applications.

Weatherability, combined with maximum moisture protection and elasticity at low temperatures, make Oppanol® grades B 100 and B 150 particularly valuable for membranes used in flat roofs. An example of how long this material survives in service is evidenced by the world’s oldest synthetic membrane roof constructed in 1956 in Leopoldshafen, Germany.

Source: Allrounder winter world, Neuss and Leopoldshafen: FDT Flachdachtechnologie GmbH + Co. KG, D-Mannheim
Meets the toughest approvals ratings

Many applications are dominated by approval processes. Approvals are costly, time-consuming and require a consistent quality from the raw materials used. It is here that the quality of our Oppanol® grades adds real value, enabling manufacturers to offer reliable and trouble-free products to the market.

Removable without leaving a trace

The well-balanced combination of adhesion and removability makes the use of Oppanol® valuable for protective films (for example applied on new cars when shipped to the dealership).

As a skin irritant-free material with excellent tack, our customers use Oppanol® as an essential ingredient in adhesive applications for plasters or ostomy bags. These products are easily removable without leaving any adhesive residues or skin irritation. For these applications, Oppanol® grades B12 – B100 are preferred.

Chewing with long lasting flavor

Chewing gum has been a part of daily life for many years, and is said to offer health and wellness benefits. Oppanol® grades B12 – B50 in particular are an essential ingredient of chewing gum, and are mainly responsible for the long lasting flavor and balanced texture.

All Oppanol® grades meet the requirements of food contact regulations. For this reason, they are used for food packaging application where an effective moisture barrier is needed to prevent food from drying.

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Stability test for Oppanol® compounds
THE OPPANOL® PRODUCT RANGE: PROPERTIES PROCESSING GENERAL REMARKS
BASF's Oppanol® grades are pure isobutene homopolymers. The non-polar characteristics lead to chemical inertness and resistance to oxidative attack. The Oppanol® grades are soluble in non-polar solvents, while functioning as solvents themselves for non-polar ingredients like, for example, certain flavor additives for chewing gum.

The Oppanol® grades are supplied in the form of transparent to slightly turbid soft resins or rubbery solids. The color can vary between colorless to slightly yellowish or grey.

<table>
<thead>
<tr>
<th>Ash content</th>
<th>Heavy metal content (soluble)</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than 100 ppm (detection limit)</td>
<td>less than 5 mg/kg (except for iron)</td>
</tr>
</tbody>
</table>

BASF’s Oppanol® portfolio includes stabilized and non-stabilized grades. In order to prevent the polymer from oxidation, stabilized grades contain an average of approximately 500 ppm 2,6-di tert-butyl-4-methylphenol (BHT). Non-stabilized grades are used for food applications like chewing gum. Apart from that, they give formulators additional freedom in composing their recipes.

<table>
<thead>
<tr>
<th>Stabilized grades</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>B 10 N</td>
<td>B 12 N</td>
</tr>
<tr>
<td>B 50</td>
<td>B 80</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non stabilized grades</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>B 10 SFN</td>
<td>B 11 SFN</td>
</tr>
<tr>
<td>B 30 SF</td>
<td>B 50 SF</td>
</tr>
</tbody>
</table>

For outdoor applications, the addition of UV stabilizers like UV absorbers or steric hindered amines is recommended. (See Weather resistance/Thermal stability on page 19)

BASF’s Oppanol® portfolio of stabilized and non-stabilized grades provides formulators with complete freedom in composing their recipes.
An outstanding and common property of all Oppanol® types is their cold flow.

This makes Oppanol® an important ingredient for adhesive formulations, and also for sealant applications. The ‘self-healing’ properties of Oppanol® based formulations attribute to cold flow as well.

Note: Cold flow decreases with increasing molecular weight.

A low glass transition temperature ($T_g \approx -60^\circ C$) allows Oppanol® to remain flexible even at low temperatures, making it ideal for applications such as roofing.

Chemical properties

Solubility/compatibility
The various Oppanol® grades are soluble in aliphatic, aromatic, cyclic and halogenated hydrocarbons. Their tendency to swell with alcohols, ethers, esters and ketones increases with the length of the polar solvent’s hydrocarbon chain.

Compatibility with fatty acid esters is limited and hence needs to be tested for specific intended applications. Different Oppanol® grades are compatible with each other.

Chemical resistance
Oppanol® is resistant to aqueous acids and alkaline solutions. Exceptions are concentrated sulfuric and nitric acid, which cause degradation of the polymer chain.

Oppanol® grades mixed with fillers, plasticizers or tackifying resins provide formulators with various property profiles for their applications.
Viscosity

The Oppanol® grades are permanently tacky and high-viscous thermoplastic polymers. Viscosity increases with increasing molecular weight. The change from a high viscous liquid to an elastic solid occurs roughly at the Oppanol® B 50 grade.

Figure 4: Brookfield Viscosity
Rotation speed: 10 rpm, Spindle: 29 BS

Oppanol® B10/B15 blend

Figure 5: Viscosity of Oppanol® blends
Brookfield viscosity at 150 °C

By combining different Oppanol® grades, viscosity levels can be adapted according to specific requirements.
Flow behavior

**Test design**
Oppanol® and Oppanol® blends, were applied between two glass plates and the flow behavior was monitored.

**Test result**
The addition of Oppanol® B 15 to Oppanol® B 10 increases viscosity and considerably reduces flow, without loosing adhesion to the glass surface.

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The flow behavior of Oppanol® can be adjusted by combining different grades.
Barrier properties

The Oppanol® grades are highly resistant to penetration by water vapor and gases such as argon. Oppanol® can also be added to other polymer materials to increase their water impermeability.

Figure 7: Water vapor permeability
Method: ASTM F-1249

The data on oxygen and argon permeability is given in table 3.

Typical window sealant formulations consist of 50–70 % PIB and 30–50 % inorganic fillers. The water vapor permeability of Oppanol® B10- and Oppanol® B15-based compounds is summarized in table 4.

All grades of Oppanol® are highly resistant to water or vapor penetration, making them ideal for barrier applications.
Adhesion properties

Oppanol® grades B 10–B 15 provide excellent tack to various substrates like glass, metal or polymers. Tack decreases with increasing molecular weight, as shown in the adjoining picture.

Test design
A very good orientation for the adhesive strength gives the peel strength test according to FINAT method FTM 1 measuring the force needed to separate an Oppanol® coated liner from various substrates.

In comparison to the Oppanol® grades B 10–B 15, Oppanol® B 50 or higher grades provide cohesive strength and result in adhesion failure. Separation occurs between surface and adhesive layer and not within the adhesive layer itself.

The FINAT peel strength test gives an excellent indication of the adhesion properties of the Oppanol® range.
An in-house laboratory method was used to depict the adhesive forces of various Oppanol® blends as the time taken for two metal blocks to separate.

The characteristic of adhesive formulations can be adapted to different requirements and optimized by combining Oppanol® grades of different molecular weights. By incorporating higher molecular weight grades, the separation time can be extended dramatically. The incorporation of higher grades than Oppanol® B 15 switches the fraction from cohesion failure to adhesion failure.

Combining different Oppanol® grades creates different degrees of adhesion, a completely customizable solution.
Compound characteristics

Oppanol® grades B 10 – B 15 provide a high filler intake. The strength of the compounds can be varied by the filler type and its concentration. An example of selected penetration values is given in table 5.

<table>
<thead>
<tr>
<th>Filler</th>
<th>Carbon black</th>
<th>Calcit</th>
<th>Clay mineral</th>
<th>China clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oppanol® B 10</td>
<td>6.1</td>
<td>9.5</td>
<td>13</td>
<td>14.3</td>
</tr>
<tr>
<td>Oppanol® B 15</td>
<td>2.9</td>
<td>6</td>
<td>5.6</td>
<td>5.7</td>
</tr>
</tbody>
</table>

Table 5: Penetration of Oppanol® compounds with 30% filler at room temperature

The use of Oppanol® B 15 extends the stability of the compound remarkably, making it the preferred Oppanol® grade for window sealant formulations.

The in-house laboratory test shown in figure 11 compares the flexural strength of various Oppanol® compounds, with 30% carbon black. The time was measured for the horizontally fixed sticks to achieve a 70° inclination. The relative results are illustrated in figure 12.

Applications requiring long-term functionality and/or exposure to wide temperature variations require strong stability and temperature resistance. In these applications, the choice of ingredients is an essential influencing factor. The mechanical strength of Oppanol® based formulations can be achieved by the addition of fillers and is fundamentally influenced by the selection of the right molecular weight Oppanol® grade.

Selection of the right Oppanol® grade results in compounds with tailor made mechanical properties.
The polymer selection essentially influences a formulation’s dimensional stability under heat. The more a polymer keeps its stiffness at increasing temperatures the higher is its heat resistance.

Figure 13 compares the temperature dependence of the storage modulus $G'$ of Oppanol® compounds resulting from DMTA (Dynamic Mechanical Thermal Analysis). The storage modulus $G'$ is representative of the material’s stiffness.

Due to their higher $G'$ values, over a broad temperature range, the Oppanol® B 15 based compounds are stiffer and therefore more heat resistant in formulations.

Oppanol® B 15 based compounds are preferrable when mechanical strength and heat resistance are required.

**DMTA of Oppanol® compounds**

![Figure 13: Storage Modulus](image)

Appropriate Oppanol® grade selection yield heat resistant compounds without compromising dimensional stability.
Long-term thermal stability has been simulated by an accelerated aging test storing Oppanol® B 10 SFN at 150 °C over four months and monitoring the Staudinger Index. (Fig. 14)

When elevated temperatures are applied over a long period, inert conditions are recommended for the SFN grades resp. the addition of stabilizers. Stabilized grades are not affected.

Increasing molecular weights reduce the sensitivity to degradation.

Polymer degradation by UV light can be prevented by adding stabilizer systems consisting of UV stabilizers (steric-hindered amines HALS) and UV absorbers. Combination with antioxidants like organophosphites or phenols are also advantageous.

Recommended concentrations are 0.1–0.5 % per stabilizer, depending on the combination and the requirements that have to be met.

Table 6: UV stabilization systems

<table>
<thead>
<tr>
<th>UV stabilizer</th>
<th>HALS</th>
<th>Antioxidant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tinuvin® 326</td>
<td>Tinuvin® 770</td>
<td>BHT Irgafos® 126</td>
</tr>
<tr>
<td></td>
<td>Chimasorb® 2020</td>
<td></td>
</tr>
<tr>
<td>Tinuvin® 326</td>
<td>Tinuvin® 770</td>
<td>Irgafos® 126 Irganox® 1010</td>
</tr>
<tr>
<td></td>
<td>Chimasorb® 2020</td>
<td></td>
</tr>
<tr>
<td>Tinuvin® 326</td>
<td>Tinuvin® 783</td>
<td>BHT Irgafos® 126</td>
</tr>
</tbody>
</table>

Figure 14: Accelerated aging of Oppanol® B 10 SFN at 150 °C

Weather resistance/Thermal stability

Oppanol® encounters slight degradation over time when exposed to UV light. However by virtue of its chemical backbone it is substantially more stable than other elastomers including butyl rubber.

Stabilizer systems can prevent Oppanol® from the impact of UV radiation.
PROCESSING

Processing conditions

Oppanol® is a thermoplastic and can be processed with conventional machinery used in the rubber industry, including kneaders, roll-mills and single- or twin-screw extruders. Sigma-bladed mixers are widely used and, depending on the viscosity range, even Banbury mixers.

For blending purposes a high viscosity component is recommended as the starting material. The mixing time to get homogenous mixtures in kneaders may vary between 0.5–2.0 hours. The greater the difference between the molecular weight of the components, the longer it takes to achieve homogeneous mixtures.

<table>
<thead>
<tr>
<th>Oppanol®</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>B 10–B 15</td>
<td>120–150 °C</td>
</tr>
<tr>
<td>B 30–B 150</td>
<td>130–200 °C</td>
</tr>
</tbody>
</table>

In order to achieve the optimum filling level of the mixing unit, the dependence of the density on temperature needs to be considered.

Oppanol®, in particular grades B 10–B 15, fluidizes substantially when temperature is increased. The influence of temperature on viscosity is illustrated in figure 4 in the “Viscosity” section (page 12).

As a thermoplastic, Oppanol® can be processed in conventional rubber processing machines.
Processing stability

Stabilizer-free Oppanol® grades degrade when severely kneaded and sheared in contact with air. The tendency to degrade increases with higher molecular weight.

Stabilizers like BHT at a level of approximately 500 ppm prevent degradation during processing. In absence of stabilizers inert conditions are recommended.

Stabilized Oppanol® grades may be preferred for harsh processing and application conditions.
Packaging

Oppanol® grades B10–B15 and B30–B50 are available in 20 kg cardboard boxes with an inner silicone release coating.

Oppanol® B10–B15 is also available in 100 lbs (45.4 kg) all-fiber drums lined with silicone coated nylon.

Oppanol® B80–B200 grades are packed in 20 kg bags. In addition to a standard PE bag, an easy-peel version is also available.

Shelf life under dry storing conditions at ambient temperatures

Box, bag: 2 years from date of production
Drum: 3 years from date of production
(<30 °C, no sun-light, dry)
GENERAL REMARKS

Food and Food Contact Information

Oppanol® polymers fulfill some of the requirements of European and respective national legislations regarding chewing gum and food contact. For details please contact your sales representative or refer to www.basf.com/pib

REACH

Oppanol® is compliant with EC Regulation 1907/2006 (REACH).

Shelf life

Storage at ambient temperatures and protection from light and moisture provided a shelf life (‘best before’ date) of two years from the date of production for all grades, whether packed in boxes or in bags. The ‘best before’ date for grades in drums is three years from the date of production. Damage to packaging must be strictly avoided while in storage or during handling.

Specifications, Material Safety Data Sheets and Certifications

Detailed product data can be found at the end of the brochure. A full range of MSDS, actual certificates (ISO, Kosher, HACCP for MM PIB) and samples of CoA are listed and available at www.basf.com/pib or through your local BASF representative.
OPPANOL® GRADES AND CHARACTERISTICS AT A GLANCE
<table>
<thead>
<tr>
<th>Oppanol® B</th>
<th>10 SFN</th>
<th>11 SFN</th>
<th>12 SFN</th>
<th>13 SFN</th>
<th>14 SFN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stabilizer [ppm] (average concentration)</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td></td>
<td>500</td>
<td>500</td>
<td></td>
<td></td>
<td>500</td>
</tr>
</tbody>
</table>

**Specification**

Staudinger Index Jo* 27.5–31.2 32.5–36 34.5–39 39.0–43.0 42.5–46.4

**Typical characteristics**

- **Average molecular weight Mn (viscosity average):** 40,000 49,000 55,000 65,000 73,000
- **Average molecular weight Mw (weight average):** 36,000 46,000 51,000 60,000 65,000
- **Average molecular weight distribution Mw / Mn:** 4.0 4.0 4.0 4.0 5.0
- **Volatiles, 150 °C, 4h, 150 mbar [%]:** <0.25 <0.25 <0.25 <0.25 <0.25
- **Fluorine [ppm]:** <5
- **Chlorine [ppm]:** <20
- **Ash content [ppm]:** <100

**Typical properties**

- **Appearance:** transparent to slightly turbid
- **Color:** colorless to slightly yellow
- **Glass transition temperature [°C]:**
- **Specific heat [kJ/kg K]:**
- **Heat conductivity [W/km]:**
- **Dielectric constant \( \varepsilon_r \) (50 Hz, 23 °C):** DIN 53483
- **Specific resistance [Ωcm]:** 1016
- **Shear viscosity:** Details upon request

**Packaging**

- B10–B15: box, drum

**Shelf life**

- Box: 2 years from date of production
- Drum: 3 years from date of production

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* The Staudinger Index Jo represents the viscosity of Oppanol® solutions in Isooctane at 20 °C

** Dry storing conditions, ambient temperatures
<table>
<thead>
<tr>
<th>Stabilizer [ppm] (average concentration)</th>
<th>15 SFN</th>
<th>30 SF</th>
<th>50 SF</th>
<th>80</th>
<th>100</th>
<th>150</th>
<th>200</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>500</td>
<td>500</td>
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<tr>
<td>Staudinger Index Jo*</td>
<td>45.9–51.6</td>
<td>76.5–93.5</td>
<td>113–143</td>
<td>178–236</td>
<td>241–294</td>
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<td>551–661</td>
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<tr>
<td>typical characteristics</td>
<td>85,000</td>
<td>200,000</td>
<td>400,000</td>
<td>800,000</td>
<td>1,110,000</td>
<td>2,600,000</td>
<td>4,000,000</td>
</tr>
<tr>
<td>Average molecular weight Mv (viscosity average)</td>
<td>75,000</td>
<td>200,000</td>
<td>340,000</td>
<td>750,000</td>
<td>1,100,000</td>
<td>2,500,000</td>
<td>4,100,000</td>
</tr>
<tr>
<td>Average molecular weight Mw (weight average)</td>
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<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Volatiles, 150 °C, 4 h, 150 mbar [%]</td>
<td>&lt;0.25</td>
<td>&lt;0.25</td>
<td>&lt;0.25</td>
<td>&lt;0.25</td>
<td>&lt;0.25</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>Fluorine [ppm]</td>
<td>&lt;20</td>
<td>&lt;20</td>
<td>&lt;20</td>
<td>&lt;20</td>
<td>&lt;20</td>
<td>&lt;20</td>
<td>&lt;20</td>
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<tr>
<td>Chlorine [ppm]</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Ash content [ppm]</td>
<td>&lt;100</td>
<td>&lt;100</td>
<td>&lt;100</td>
<td>&lt;100</td>
<td>&lt;100</td>
<td>&lt;100</td>
<td>&lt;100</td>
</tr>
<tr>
<td>Appearance</td>
<td>transparent to slightly turbid</td>
<td>clear to whitish</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>colorless to slightly yellow</td>
<td>colorless to light brown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glass transition temperature [°C]</td>
<td>−64</td>
<td>2.0</td>
<td>0.19</td>
<td>2.2</td>
<td>1016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific heat [kJ / kg K]</td>
<td>2.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heat conductivity [W / km]</td>
<td>0.19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dielectric constant ( \varepsilon_r ) (50 Hz, 23 °C) DIN 53483</td>
<td>2.2</td>
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<tr>
<td>Specific resistance [\Omega \text{cm}]</td>
<td>1016</td>
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<tr>
<td>Shear viscosity</td>
<td>Details upon request</td>
<td>B30–B50: box</td>
<td>B80–B200: bag/bag easy peel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Packaging</td>
<td>B 10 – B 15: box</td>
<td>box: 2 years from date of production</td>
<td>2 years from date of production</td>
<td></td>
<td></td>
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<td></td>
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</tbody>
</table>
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Note

This version (EVO1313) supersedes version EVO1001.

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