Sealing applications

MARKETS

Mersen is one of the oldest manufacturers of flexible graphite in the world. Papyex® quality is demanded, through technical specifications, by many end users engaged in the chemical, nuclear, aeronautical, refining sectors, etc.

Through Papyex®, Mersen guarantees for its partners, experts in sealing products, reliability, service and performance, in particular in terms of resistance to oxidation.

STATIC GASKETS

Papyex®, by virtue of its chemical, physical and mechanical characteristics, is an excellent material for flange gaskets.

Papyex® flange gaskets have the following advantages:

• Excellent properties for use under pressure and temperature.
• Insensitivity to thermal shocks.
• No ageing: neither shrinkage, nor hardening, nor hot creep.
• Practically unlimited chemical resistance.
• Non-polluting (asbestos-free).
• Easy to cut and shape.

The main fields of use are: chemical and petrochemical industries, refineries, and the energy, engineering and automotive sectors.
DYNAMIC GASKETS

Seals produced from Papyex® are self-lubricating. They resist high temperatures, high pressures and chemical agents. Regular inspection and periodic replacements are not necessary.

Papyex® is a flexible, pure, homogeneous material without binder or asbestos. It is characterised by its qualities of thermal conductivity, elastic recovery, capacity for compacting, friction even when dry, and chemical inertness.

Papyex® seals, by virtue of the absence of ageing and relaxation, avoid retightening and eliminate wear on rods and shafts.

Papyex® is used as a stuffing-box material for valves, pumps, mixers and stirrers in the chemical, refrigeration, oil, petrochemical and food industries.

This material guarantees long service life: a Papyex® seal means 35,000 operations, and several years of use without leakage and without maintenance.
Mersen in furnace industries

- Heat-treatment furnaces under vacuum or controlled atmosphere.
- Furnaces for passing through controlled atmosphere.
- Vacuum brazing furnaces.

Mersen offers a complete range of high-performance materials for industrial furnaces:
- Calcarb®, rigid carbon felt insulation.
- Graphite for refractory application.
- Carbon/carbon composite.
- Papyex®, flexible graphite.

Associated with other Mersen’s materials Papyex® has become the essential material for overcoming numerous technical difficulties at the best cost for industrial furnace users.

Why Papyex® in furnaces?

- As a screen: thanks to its reflecting capacity, it reduces energy loss. The anisotropy of its thermal conductivity ensures a better homogenisation of the temperature in the chamber.
- As a thermal insulation element: it can be used alone, in multiple screens, or in addition to commonplace insulating materials: carbon felt, rigid felt, graphite foam.
- As a sealing material: in plants functioning at high temperatures and in a corrosive environment, it is impermeable to hot gas and can be used as a static gasket or impervious packing.

Assemblies with insulators

Papyex® is used in combination with insulators for limiting hot spots and for its heat-reflecting capacity. The assemblies can be produced on rigid insulators such as Calcarb® or on flexible felt.

To make these assemblies, Mersen uses an adhesive that withstands very high temperatures.

Resistance to thermal shocks

During a rapid rise in temperature, the gases contained in Papyex® may cause blisters on the surface of the material. To avoid this inconvenience, Papyex® FHT is first treated at high temperature, which eliminates this risk.

Moreover, on request, the surface of Papyex® can be perforated to facilitate degassing.
Other applications

ELECTRICAL RESISTANCE IN FURNACES
Thanks to its flexibility and fineness, Papyex® can be cut easily, thereby making it possible to manufacture curved resistors that adapt to non-standard laboratory equipment.

PROTECTIVE INTERFACE
- For metal casting, Papyex® provides protection for graphite moulds and ingot moulds preventing the sticking of certain metals and alloys; it prevents a rapid deterioration of expensive equipment and facilitates mould stripping.
- In the glass industry, Papyex® is not wet by molten or viscous glass.
- In hot compression operations and in particular in the case of sintering, the thinnest Papyex® makes it possible to produce inserts that facilitate mould stripping and better temperature distribution.
- In soldering or brazing, in particular in the case of work on delicate assemblies, Papyex® is used to protect against splashing of adjacent areas that would risk being damaged.
- In producing ingots, Papyex® is used for protecting the graphite equipment from reactions with the silicon. For this type of application, Papyex® can be purified (less than 5 ppm).

HEAT DISSIPATION PRODUCT
The conductivity of Papyex® in the plane of the sheet increases greatly with an increase in density (see graph page 9). This material can then be used for dissipating heat with performances equivalent to conductive metals such as copper. In electronics, it thus serves as a thermal interface and heat sink. Its lightness and reasonable cost, makes it competitive compared to other solutions.
NATURAL GRAPHITE
Flexible graphite is manufactured from purified natural graphite crystallites. The best graphite ores are mainly extracted in China, Canada, India and Madagascar. In order to obtain good-quality flexible graphite, it is necessary to select ores having crystallites with dimensions greater than 180 µm.

EXPANDABLE GRAPHITE
Graphite has the property of forming lamellar compounds by the insertion of atoms or molecules in its structure. This property is used for manufacturing expandable graphite by acid insertion. The inserted compound reacts to a thermal shock at very high temperature: the insertion element vaporises and expands each graphite crystallite.

Characteristics
- Low permeability to gases and liquids
- Flexibility, flexible texture
- Resistance to most fluids
- Absence of danger to health; asbestos-free
- No danger to the environment
- Suitable for use at temperatures varying from -250°C to 450°C in air and up to 3000°C in inert atmosphere
- Absence of binders causing neither ageing nor crumbling
- Long-term compressibility stability over a wide range of temperatures
- High elastic recovery
- Anisotropic electrical and thermal conductivity
- Resistance to radiation
- Very good resistance to thermal shock
- Facilitates cutting by punch
Sealing products

Papyex® roll
- Standard width: 500, 1,000, 1,500 mm.
- Standard density: 0.7g / cm³ to 1.1g / cm³.
- Standard thickness: 0.2 to 1.5 mm in roll form, up to 10 mm in plate form.

Papyex® tape slit from a roll.
- Minimum width: 4.5 mm.

Spiral wound gasket: Co-winding of Papyex® and steel.

Graphite rings with or without metal insert obtained by compressing Papyex® tapes.

Flat gasket cut by punch, water jet, oscillating blade.

Papyex® HP: multi-reinforcement gasket easy to cut by conventional means.

Reinforced sheets assembled by gluing or clinched with tanged inserts.
For more than 30 years, Mersen has been rigorously selecting and processing the best natural graphite ores in order to guarantee its clients compliance with the strictest standards for industrial, nuclear and automotive sealing.

The wide range of Papyex® grades can meet the most advanced requirements for chemical purity in order to minimise risks of corrosion and extend its use beyond 450°C. Specific anti-corrosion and anti-oxidation treatments further extend its use under extreme conditions.

### Flexible graphite meeting sealing requirements

<table>
<thead>
<tr>
<th></th>
<th>Chemical, petrochemical industries</th>
<th>Automotive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I600</td>
<td>IP980</td>
</tr>
<tr>
<td></td>
<td>I980</td>
<td></td>
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<tr>
<td></td>
<td>IZ980</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A960</td>
<td></td>
</tr>
<tr>
<td><strong>Chemical, petrochemical industries</strong></td>
<td>Low oxidation rate</td>
<td>With oxidation inhibitor</td>
</tr>
<tr>
<td><strong>specification</strong></td>
<td><strong>typical value</strong></td>
<td><strong>specification</strong></td>
</tr>
<tr>
<td>Carbon rate</td>
<td>&gt; 96%</td>
<td>&gt; 95%</td>
</tr>
<tr>
<td>Ash content</td>
<td>&lt; 1%</td>
<td>&lt; 2%</td>
</tr>
<tr>
<td>Inhibitor rate</td>
<td></td>
<td>2% to 6%</td>
</tr>
<tr>
<td>Sulfur content</td>
<td>&lt; 700 ppm</td>
<td>&lt; 1.400 ppm</td>
</tr>
<tr>
<td>Total chlorine content</td>
<td>&lt; 50 ppm</td>
<td>&lt; 50 ppm</td>
</tr>
<tr>
<td>Mass loss (500°C / 24h)</td>
<td>&lt; 0.5%</td>
<td>&lt; 4%</td>
</tr>
<tr>
<td>Mass loss (670°C / 4h)</td>
<td>&lt; 4%/h</td>
<td>3%</td>
</tr>
<tr>
<td><strong>Automotive</strong></td>
<td>Low purity</td>
<td></td>
</tr>
<tr>
<td><strong>specification</strong></td>
<td><strong>typical value</strong></td>
<td></td>
</tr>
<tr>
<td>Carbon rate</td>
<td>&gt; 96%</td>
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</tr>
<tr>
<td>Ash content</td>
<td>&lt; 1%</td>
<td>&lt; 2%</td>
</tr>
<tr>
<td>Inhibitor rate</td>
<td></td>
<td>2% to 6%</td>
</tr>
<tr>
<td>Sulfur content</td>
<td>&lt; 700 ppm</td>
<td>&lt; 1.400 ppm</td>
</tr>
<tr>
<td>Total chlorine content</td>
<td>&lt; 50 ppm</td>
<td>&lt; 50 ppm</td>
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<tr>
<td>Mass loss (500°C / 24h)</td>
<td>&lt; 0.5%</td>
<td>&lt; 4%</td>
</tr>
<tr>
<td>Mass loss (670°C / 4h)</td>
<td>&lt; 4%/h</td>
<td>3%</td>
</tr>
<tr>
<td><strong>Maximum operating temperature:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• to air</td>
<td>550 °C</td>
<td>450 °C</td>
</tr>
<tr>
<td>• under an inert atmosphere</td>
<td>2,700 °C</td>
<td>2,700 °C</td>
</tr>
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</table>

### General properties

<table>
<thead>
<tr>
<th></th>
<th>specification</th>
<th>typical value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile strength</td>
<td>&gt; 4 Mpa</td>
<td>4.5 Mpa</td>
</tr>
<tr>
<td>Compressibility</td>
<td>45% to 52%</td>
<td>45% to 52%</td>
</tr>
<tr>
<td>Elastic recovery</td>
<td>10% to 15%</td>
<td>10% to 15%</td>
</tr>
<tr>
<td>Area weight distribution (g / m²)</td>
<td>+ / -5%</td>
<td>3.50%</td>
</tr>
</tbody>
</table>

### Physical properties

<table>
<thead>
<tr>
<th></th>
<th>unit</th>
<th>in plane</th>
<th>through thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permeability</td>
<td>cm².s⁻¹.atm⁻¹</td>
<td>-</td>
<td>10⁻⁵</td>
</tr>
<tr>
<td>Shore hardness</td>
<td>C°</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Coefficient of thermal expansion</td>
<td>10⁻⁴ °C⁻¹</td>
<td>zero</td>
<td>25 to 28</td>
</tr>
<tr>
<td>Electrical resistivity</td>
<td>Ω.cm</td>
<td>0.001</td>
<td>0.05</td>
</tr>
<tr>
<td></td>
<td>Ω.inch</td>
<td>0.0004</td>
<td>0.02</td>
</tr>
<tr>
<td>Emissivity coefficient at 400°C</td>
<td>-</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td>at 1 000°C</td>
<td>-</td>
<td>0.6</td>
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# Flexible graphite meeting sealing requirements

## Nuclear

<table>
<thead>
<tr>
<th>Material</th>
<th>Specification</th>
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</thead>
<tbody>
<tr>
<td>N9985</td>
<td>The highest purity without additive</td>
<td>&gt; 99.85%</td>
</tr>
<tr>
<td>N998</td>
<td>High purity, active protection against corrosion</td>
<td>&gt; 99.8%</td>
</tr>
<tr>
<td>NSZ998</td>
<td>High purity with oxidation inhibitor</td>
<td>&gt; 93.5%</td>
</tr>
<tr>
<td>NS200</td>
<td>Very low sulfur without additive</td>
<td>&gt; 98.5%</td>
</tr>
<tr>
<td>NSZ200</td>
<td>Very low sulfur, active protection against corrosion</td>
<td>&gt; 96.5%</td>
</tr>
<tr>
<td>N998</td>
<td>High purity, active protection against corrosion</td>
<td>&gt; 99.8%</td>
</tr>
<tr>
<td>NS200</td>
<td>Very low sulfur without additive</td>
<td>&gt; 98.5%</td>
</tr>
<tr>
<td>N998</td>
<td>High purity, active protection against corrosion</td>
<td>&gt; 99.8%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Property</th>
<th>N9985</th>
<th>NS200</th>
<th>NSZ200</th>
<th>N998</th>
<th>NSZ998</th>
<th>N998</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Rate</td>
<td>&gt; 99.90%</td>
<td>&gt; 99.95%</td>
<td>&gt; 98.5%</td>
<td>&gt; 96.5%</td>
<td>&gt; 96%</td>
<td>&gt; 98.50%</td>
</tr>
<tr>
<td>Ash Content</td>
<td>&lt; 0.15%</td>
<td>&lt; 0.15%</td>
<td>&lt; 0.5%</td>
<td>&lt; 0.2%</td>
<td>&lt; 0.2%</td>
<td>&lt; 0.2%</td>
</tr>
<tr>
<td>Inhibitor Rate</td>
<td>2% to 6%</td>
<td>2% to 6%</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Sulfur Content</td>
<td>&lt; 600 ppm</td>
<td>&lt; 200 ppm</td>
<td>120 ppm</td>
<td>&lt; 600 ppm</td>
<td>450 ppm</td>
<td>&lt; 600 ppm</td>
</tr>
<tr>
<td>Total Chlorine Content</td>
<td>&lt; 30 ppm</td>
<td>&lt; 30 ppm</td>
<td>20 ppm</td>
<td>&lt; 30 ppm</td>
<td>20 ppm</td>
<td>&lt; 30 ppm</td>
</tr>
<tr>
<td>Leachable Chlorine Content</td>
<td>&lt; 20 ppm</td>
<td>10 ppm</td>
<td>-</td>
<td>&lt; 20 ppm</td>
<td>10 ppm</td>
<td>-</td>
</tr>
<tr>
<td>Halogen Content (F, Br, I)</td>
<td>-</td>
<td>&lt; 50 ppm</td>
<td>30 ppm</td>
<td>&lt; 50 ppm</td>
<td>30 ppm</td>
<td>-</td>
</tr>
<tr>
<td>Mass Loss (500°C / 24h)</td>
<td>&lt; 1%</td>
<td>0.50%</td>
<td>1%</td>
<td>&lt; 1%</td>
<td>0.60%</td>
<td>-</td>
</tr>
</tbody>
</table>

### Maximum operating temperature:

- **To air**
  - N9985: 500 °C
  - NS200: 500 °C
  - NSZ200: 500 °C
  - N998: 500 °C
  - NSZ998: 450 °C
  - N998: 450 °C

- **Under an inert atmosphere**
  - N9985: 2.700 °C
  - NS200: 2.700 °C
  - NSZ200: 2.700 °C
  - N998: 2.700 °C
  - NSZ998: 2.700 °C
  - N998: 2.700 °C

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IN PARTNERSHIP WITH SPECIALISTS IN STATIC SEALING, Mersen has developed a complete range of flexible graphite sheets allowing customers to cut flat gaskets for their specific applications.

They are available in all grades suited to purity specifications for the chemical, petrochemical, refining, and nuclear or aeronautics industries. Mersen checks the purity of its materials in its analysis and measuring laboratories on a daily basis in order to guarantee its customers compliance with chemical specifications for materials.

**Grades of sheets**

**ANTI-STICKING COATING FOR FACILITATING GASKET REMOVAL**

Mersen has developed a surface impregnation that forms an anti-adhesion coating effective up to 350°C in application. This AS “Anti-Stick” coating meets the technical specifications of leading chemical firms in Germany. It is an option that is particularly recommended for tanged reinforced products.

**Non-stick coating TEST**

Gasket before assembly

Gasket after removal

- Hot steam: 60 Bar, 280°C
- DN80PN100 flange gasket
- Assembly stress: 90 MPa

**A UNIQUE SERVICE FOR PROMOTING YOUR BRAND**

Mersen - sealing specialists - offers its customers the option of promoting or customizing their own brand, by means of a service marking the sheets by screen printing. We can print your sheets in the colour and model of your choice. The largest format is up to 1.500 x 2.000 mm.
Technical data of Papyex® sheets

PAPYEX® SR

Flexible graphite sheet without reinforcement.

- Unit / standard: m
- Sheet size: 1 x 1 / 1.5 x 1.5
- Insert material: DIN / ASTM without insert
- Insert thickness: µm
- Nomenclature: DIN 28 091-4
- Flexible graphite density: 0.7 to 1.3 g/cm³ + / -10%
- Standard thicknesses: 1.5 to 3.0
- Amount of inserts: 0
- Gas permeability (helium): < 0.30 cm³ / min
- Specific leakage rate L: < 0.08 mg / s / m
- σ at 300°C: 160 N / mm²
- Gasket coefficient (bD = 20 mm):
  - σ, DIN E 2505: 20 N / mm²
  - m DIN E 2505: 1.3 DIN coefficient
  - m coefficient ASTM: 2
  - y coefficient ASTM: 1.500 psi
  - Compressibility ASTM F36A-6d: 40-50 %
  - Elastic recovery ASTM F56A-66: 10-15 %
  - Residual stress DIN 52913, 16h / 300°C: > 47 N / mm²
  - Ash content DIN 51903: < 2.0 %
  - Sulfur content ppm: < 2.0
  - Anti-sticking treatment: No

PAPYEX® RI

Flexible graphite sheet reinforced with a 50 µm glued flat stainless steel insert. It is used in flange connections for chemical, petrochemical industries.

- Unit / standard: m
- Sheet size: 1 x 1 / 1.5 x 1.5
- Insert material: 1.4401 / SS316 (flat)
- Insert thickness: 50 µm
- Nomenclature: GR-10
- Flexible graphite density: 0.7 to 1.3 g/cm³ + / -10%
- Standard thicknesses: 0.75 to 3.0
- Amount of inserts: 1
- Gas permeability (helium): < 0.60 cm³ / min
- Specific leakage rate L: < 0.06 mg / s / m
- σ at 300°C: 160 N / mm²
- Gasket coefficient (bD = 20 mm):
  - σ, DIN E 2505: 10 N / mm²
  - m DIN E 2505: 1.3 DIN coefficient
  - m coefficient ASTM: 2
  - y coefficient ASTM: 1.500 psi
  - Compressibility ASTM F36A-66: 40-50 %
  - Elastic recovery ASTM F56A-66: 10-15 %
  - Residual stress DIN 52913, 16h / 300°C: > 47 N / mm²
  - Ash content DIN 51903: < 2.0 %
  - Sulfur content ppm: < 2.0
  - Anti-sticking treatment: No

PAPYEX® RN

Flexible graphite sheet reinforced with a 13 µm glued flat nickel insert. Easy cutting and resistant to very corrosive fluids, in particular chlorine.

- Unit / standard: m
- Sheet size: 0.5 x 1 / 1 x 1 / 1.5 x 1.5
- Insert material: 1.4401 / SS316 (perforated)
- Insert thickness: 13 µm
- Nomenclature: GR-10-O-1 K-Cr
- Flexible graphite density: 0.7 to 1.3 g/cm³ + / -10%
- Standard thicknesses: 0.4 to 2.0
- Amount of inserts: 1 or 2
- Gas permeability (helium): < 0.80 cm³ / min
- Specific leakage rate L: < 0.1 mg / s / m
- σ at 300°C: 110 N / mm²
- Gasket coefficient (bD = 20 mm):
  - σ, DIN E 2505: 10 N / mm²
  - m DIN E 2505: 1.3 DIN coefficient
  - m coefficient ASTM: 2.5
  - y coefficient ASTM: 1.500 psi
  - Compressibility ASTM F36A-66: 40-50 %
  - Elastic recovery ASTM F56A-66: 10-15 %
  - Residual stress DIN 52913, 16h / 300°C: > 45 N / mm²
  - Ash content DIN 51903: < 2.0 %
  - Sulfur content ppm: < 2.0
  - Anti-sticking treatment: No

PAPYEX® PI

Flexible graphite sheet reinforced with a 100 µm stainless steel insert, without adhesive. Suitable for manufacturing pipe gaskets & reactors seals in chemical and petrochemical industries.

- Unit / standard: m
- Sheet size: 1 x 1 / 1.5 x 1.5
- Insert material: GR-10-O-1 M-Cr
- Insert thickness: 100 µm
- Nomenclature: 1
- Flexible graphite density: 0.7 to 1.3 g/cm³ + / -10%
- Standard thicknesses: 1.0 to 3.0
- Amount of inserts: 1 or 2
- Gas permeability (helium): < 1.0 cm³ / min
- Specific leakage rate L: < 0.1 mg / s / m
- σ at 300°C: 45 N / mm²
- Gasket coefficient (bD = 20 mm):
  - σ, DIN E 2505: 20 N / mm²
  - m DIN E 2505: 1.3 DIN coefficient
  - m coefficient ASTM: 3
  - y coefficient ASTM: 1.500 psi
  - Compressibility ASTM F36A-66: 60 %
  - Elastic recovery ASTM F56A-66: 15-20 %
  - Residual stress DIN 52913, 16h / 300°C: > 48 N / mm²
  - Ash content DIN 51903: < 2.0 %
  - Sulfur content ppm: < 2.0
  - Anti-sticking treatment: Yes, upon request

Papyex® RI / Papyex® RN - Pressure / temperature

Papyex® PI - Pressure / temperature
The structure patented by Mersen pushes back the boundaries of flexible graphite in the field of sealing:

- Very high pressure.
- No adhesive, simple mechanical assembly for very high temperatures.
- Easy cutting by conventional means by virtue of fine reinforcements.
- Easy dismantling because of the anti-sticking treatment.
**High-performance Papyex® HP multi-reinforcement sheet**

**PAPYEX® HP**

Multireinforced flexible graphite sheet designed to resist very high pressures and mechanical stresses even at the highest temperatures. Suitable for high pressure steam in generator, pump seals and high pressure vessels.

<table>
<thead>
<tr>
<th>technical data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 x 1 / 1.5 x 1.5</td>
</tr>
<tr>
<td>1.4401 / SS316 (L) (tanged)</td>
</tr>
<tr>
<td>50</td>
</tr>
<tr>
<td>GR-11-13-Cr</td>
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<tr>
<td>1.1</td>
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<table>
<thead>
<tr>
<th>Sheet size</th>
<th>m</th>
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<tbody>
<tr>
<td>Standard thickness</td>
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<tr>
<td>Insert material</td>
<td>DIN / ASTM</td>
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<tr>
<td>Insert thickness</td>
<td>µm</td>
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<tr>
<td>Nomenclature</td>
<td>DIN 28 091-4</td>
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<tr>
<td>Flexible graphite density</td>
<td>g / cm3 + / - 10 %</td>
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<tr>
<td>Amount of inserts</td>
<td>nb</td>
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<tr>
<td>“Anti-sticking” treatment</td>
<td>yes</td>
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</table>

**Mechanical tests:**
- EN 13555 - Gasket width 20 mm
- **Q**
- **PQr** (50 Mpa)
- Compressibility ASTM F36A-66
- Elastic recovery ASTM F36A-66
- Residual stress DIN 52913, 16h / 300°C

<table>
<thead>
<tr>
<th><strong>T°C</strong></th>
<th>20°C</th>
<th>300°C</th>
<th>400°C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Q</strong></td>
<td>&gt; 220</td>
<td>&gt; 220</td>
<td>200</td>
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<tr>
<td><strong>PQr</strong> (50 Mpa)</td>
<td>0.99</td>
<td>0.94</td>
<td>0.92</td>
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<td>Compressibility ASTM F36A-66</td>
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<td>&gt; 48</td>
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</table>

<table>
<thead>
<tr>
<th>Gasket coefficient (bD = 20 mm):</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>σ</strong> DIN E 2505</td>
</tr>
<tr>
<td><strong>m</strong> DIN E 2505</td>
</tr>
<tr>
<td><strong>m</strong> coefficient ASTM</td>
</tr>
<tr>
<td><strong>y</strong> coefficient ASTM</td>
</tr>
</tbody>
</table>

**Papyex® grades available:**
- Ash content DIN 51903
- Sulfur content
- Chlorine content

**Maximal seat pressure on the gasket**

<table>
<thead>
<tr>
<th>Pressure / temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid pressure (Bar)</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>Temperature °C</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>Not suitable</td>
</tr>
</tbody>
</table>

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