Ceramic coatings on metal surfaces

- Excellent electrical and thermal insulation
- High thermal and corrosion stability
- Wear-resistant

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Benefits and properties

- Excellent electrical and thermal insulation
- High thermal and corrosion stability
- Wear-resistant
- Coating with electrical/thermal conductivity possible
- Application on virtually all metal surfaces

Field of application

- Insulation of roller bearings
- Wear components for textile and wire machinery
- Electrical insulation of heating conductors

Ceramic coatings
wear-resistant and reliable

Process

Ceramic layers are applied on pre-treated metal surfaces by a thermal spraying process and surface qualities tailored to application requirements. Thick-walled metal parts do not heat up above 200°C thus ensuring that no structural changes occur. A big advantage is the free choice of metallic base material.

Applications

Ceramic coatings show higher hardness and wear resistance than hard chrome alternatives. Successful areas of application include wear components for textile and wire machinery, welding devices, electrical insulation of heating conductors, current-insulation of rolling bearings.

Corrosion resistant substrate materials such as stainless steel 1.4301 and aluminium are recommended in humid or corrosive environments due to the process-related porosity. Pores are additionally sealed with nanocomposites.

Physical properties

<table>
<thead>
<tr>
<th>layer material Nr.</th>
<th>colour</th>
<th>wear resistance</th>
<th>electrical insulation</th>
<th>thermal insulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al₂O₃ / TiO₂ (97/3)</td>
<td>R103 grey</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Al₂O₃ / TiO₂ (87/13)</td>
<td>R113 anthracite</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Al₂O₃ / TiO₂ (60/40)</td>
<td>R140 black</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Al₂O₃ (99)</td>
<td>R100 white</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>ZrO₂ / CaO (95/5)</td>
<td>R295 ivory</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>ZrO₂ / Y₂O₃ (92/8)</td>
<td>R292 ivory</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Cr₂O₃ (99)</td>
<td>R399 grey green</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Cr₂O₃ / TiO₂ (60/40)</td>
<td>R385 anthracite</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

Your contact person

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