Especially for hygienic areas.

Antibacterial KLB-Coatings
KLB-SYSTEM AntiBak
Escherichia coli and staphylococcus aureus are used as an example of many different bacterial strains. In the test specified in the standard, the bacterial strains are applied with a nutrient solution on a reference sample and on the antibacterial coating or sealing. Subsequently, the samples are incubated for 18 hours at 35 °C and sufficient humidity. The antibacterial efficacy results from the difference of the germ counts on the samples and the reference samples.

Bacteria can remain on surfaces for days, weeks of months. Surfaces with antibacterial effect represent a major contribution to hygiene and protection from bacterial contamination.

The increased occurrence of bacterial pathogens resistant to different antibiotics (so-called multiresistant pathogens) such as e.g. Methicillin-Resistant Staphylococcus Aureus (MRSA), raises general concern. In particular, the inadequate implementation of prophylactic hygiene measures is to be seen as reason for the sharp growth in the germ colonisation. It is also known that e.g. MRSA can survive many weeks on sterilised surfaces. A sterile environment alone is nowadays far from sufficient to combat against multiresistant bacteria.

The antibacterial test of our products was carried out by the Hohenstein Laboratories GmbH & Co. KG test institute, confirming a high antibacterial efficacy.

The KLB-Coating Systems with antibacterial effect were tested for their antibacterial efficacy according to ISO 22196:2011-08 and JIS Z 2801:2000.

Escherichia coli and staphylococcus aureus are used as an example of many different bacterial strains. In the test specified in the standard, the bacterial strains are applied with a nutrient solution on a reference sample and on the antibacterial coating or sealing. Subsequently, the samples are incubated for 18 hours at 35 °C and sufficient humidity. The antibacterial efficacy results from the difference of the germ counts on the samples and the reference samples.

The antibacterial test of our products was carried out by the Hohenstein Laboratories GmbH & Co. KG test institute, confirming a high antibacterial efficacy.
The following antibacterial floor coverings reduce bacteria by more than 99.9% on the surface:

- KLB-SYSTEM EPOXY EP 202 AntiBak
- KLB-SYSTEM POLYURETHANE PU 806 E AntiBak
- KLB-SYSTEM POLYURETHANE PU 806 E AntiBak - R10
- KLB-SYSTEM POLYURETHANE PU 806 E AntiBak - Wall
- KLB-SYSTEM PU-BETON 4080 Kopfsiegel AntiBak

These coatings and sealants are used in areas where contaminations by bacteria are to be avoided, notably hygiene areas in hospitals, nursing homes, kindergartens and public buildings, but also production areas in the food sector and pharmaceutical industry.

In areas with special hygiene regulations, surfaces are cleaned and disinfected frequently. The antibacterial effect of KLB coating systems is not impaired even by intensive cleaning or disinfection.

The antibacterial efficacy is possible through smallest active substance particles, which are embedded in the entire coating or sealing. The humidity content of the air alone causes an antibacterial humidity film to form on the surface. This film destabilises and dissolves the cell wall of bacteria. The bacterium dies. The active substance and its mode of action are physiologically safe to humans.

Please note: All stated information is based on our previous experience and composition. It is not possible to consider every single case. Please seek advice for your special cases. We guarantee the correct and proper quality of our products. We do not assume responsibility for the work not carried out by us since we have no influence on the processing or processing conditions. We recommend that on-site-trials will be conducted. Our "General Terms and Conditions" apply.
The antibacterial coating and sealants are suitable for wall and floor surfaces in areas with high hygiene requirements, and in particular to reduce bacterial contamination. **KLB-SYSTEM EPOXY EP 202 AntiBak** is a low-emission, self-levelling 2-component epoxy resin coating. It is equipped with a high mechanical resistance for industrial requirements with medium load. **KLB-SYSTEM EPOXY EP 202 AntiBak** has a smooth and shiny surface.

**KLB-SYSTEM POLYURETHANE PU 806 E AntiBak** is a coloured, matting 2-component polyurethane sealant for floor and wall coatings.

The antibacterial finish can be supplied in different products:

- **KLB-SYSTEM POLYURETHANE PU 806 E AntiBak**
- **KLB-SYSTEM POLYURETHANE PU 806 E AntiBak - R10**
- **KLB-SYSTEM POLYURETHANE PU 806 E AntiBak - Wall**

All sealants are characterised by a low-emission formulation, have a homogeneous, coloured surface and are environmentally-friendly and resistance to abrasion. The sealants meet the AgBB rating scheme and can be laid in living rooms and lounges.

**Application Area**

- In healthcare areas such as hospitals, doctor’s treatment or waiting rooms, health authorities, pharmacies, nursing homes, diagnostic rooms etc.
- In the life sciences industry such as biotechnology, pharmaceutical engineering and experimental medicine

Very convincing:

- antibacterial surface
- protection from bacterial growth
- decorative surface
- solvent-free
- abrasion-proof
- environmentally-friendly
- low-emission quality
Antibacterial Sealer
KLB-SYSTEM POLYURETHANE
PU 806 E AntiBak / PU 806 E AntiBak - R10

Coating with VOC-tested
KLB-SYSTEM EPOXY EP 202 AntiBak

Scratch coat with VOC-tested
KLB-SYSTEM EPOXY EP 55 blended with KLB-Sand Blend 2/1

Base coat with VOC-tested
KLB-SYSTEM EPOXY EP 55

Screed CT-C35-F5 or Concrete C20/25

**Build-up of system**

<table>
<thead>
<tr>
<th>Layer</th>
<th>in Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sealer (optional)</td>
<td>KLB-SYSTEM POLYURETHANE PU 806 E Antibak,</td>
</tr>
<tr>
<td></td>
<td>KLB-SYSTEM POLYURETHANE PU 806 E Antibak - R10</td>
</tr>
<tr>
<td>Coating</td>
<td>KLB-SYSTEM EPOXY EP 202 AntiBak</td>
</tr>
<tr>
<td>Scratch coat</td>
<td>KLB-SYSTEM EPOXY EP 55 blended with KLB-Sand Blend 2/1</td>
</tr>
<tr>
<td>Base coat</td>
<td>KLB-SYSTEM EPOXY EP 55</td>
</tr>
<tr>
<td>Substrate</td>
<td>Requirements for the substrate according to the BEB-worksheets and our</td>
</tr>
<tr>
<td></td>
<td>detailed base coat instructions or advice by our technicians.</td>
</tr>
</tbody>
</table>

**System variant wall coating**

<table>
<thead>
<tr>
<th>Layer</th>
<th>in Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sealer (optional)</td>
<td>KLB-SYSTEM POLYURETHANE PU 806 E AntiBak - Wall</td>
</tr>
<tr>
<td>Wall coating</td>
<td>KLB-SYSTEM EPOXY EP 652 W (for smoothing the surface apply, if required,</td>
</tr>
<tr>
<td></td>
<td>several times with intermediate grinding)</td>
</tr>
<tr>
<td>Base coat</td>
<td>KLB-SYSTEM EPOXY EP 55</td>
</tr>
</tbody>
</table>
In particular bacteria represent a risk in the food-processing industry, which can lead to health and commercial damage. The antibacterial surface of the KLB-SYSTEM PU-BETON 4080 Kopfversiegelung AntiBak offers high effectiveness to bacteria and is completely harmless in physiological terms. Compared to other epoxy resin coatings, KLB-SYSTEM PU-BETON has a high temperature resistance and very good resistance to chemicals. The coating can be used at a temperature of up to 150 °C. KLB-SYSTEM PU-BETON is suited for use in areas of the food industry, where temperature, chemical and hot water loads are is normal.

KLB-SYSTEM PU-BETON 4080 Kopfversiegelung AntiBak can be laid in food production and processing as well as in the beverage industry, to avoid secondary contamination and further production of bacteria. Bacteria able to survive on normally sterilised surfaces are killed within a few hours if the coating material has an antibacterial effect. The effectiveness of the antibacterial sealant is also not impaired by intensive cleaning.

**Application Area**
- Breweries, vinification industry, beverage industry
- Slaughterhouses and butcheries
- Food industry, bakeries
- Creamery / dairy farming
- Chemical industries of food manufacturing, pharmaceutical industry and many more

**Very convincing:**
- antibacterial surface
- high mechanical load
- protection from bacterial growth
- slip-resistance grades from R9 to R13 possible
- vapour cleaning possible
- suitable for foodstuffs
- available in beige, red, green and grey colour

**No place for bacteria – The robust solution!**
Build-up of system

<table>
<thead>
<tr>
<th>Layer</th>
<th>in Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lamination strength</td>
<td>6 - 9 mm</td>
</tr>
<tr>
<td>Sealer</td>
<td>KLB-SYSTEM PU-BETON 4080 Kopfversiegelung AntiBak</td>
</tr>
<tr>
<td>Coating</td>
<td>KLB-SYSTEM PU-BETON 4009 or KLB-SYSTEM PU-BETON 4006</td>
</tr>
<tr>
<td>Scratch coat</td>
<td>KLB-SYSTEM PU-BETON 4006 or KLB-SYSTEM PU-BETON 4009</td>
</tr>
<tr>
<td>Base coat</td>
<td>KLB-SYSTEM PU-BETON 4050 Grundierung</td>
</tr>
<tr>
<td>Substrate Requirement</td>
<td>Requirement for the substrate according to the BEB-worksheets and our detailed base coat instructions or advice by our technicians.</td>
</tr>
</tbody>
</table>

System variant

<table>
<thead>
<tr>
<th>Layer</th>
<th>in Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slip-resistance</td>
<td>By using different sand or corundum scatterings, the slip-resistance can be individually controlled from R9 - R13.</td>
</tr>
<tr>
<td>Colour</td>
<td>4 different colour tones are available</td>
</tr>
</tbody>
</table>
| Alternative coatings   | In 6 mm layer thickness: KLB-SYSTEM PU-BETON 4006  
                         | In 9 mm layer thickness: KLB-SYSTEM PU-BETON 4009                        |
KLB-SYSTEM AntiBak

Certified Quality - Antibacterial Coating Systems

DIbtt®-accredited

The decorative and antibacterial coating system KLB-SYSTEM EPOXY EP 202 AntiBak and the product family KLB-SYSTEM POLYURETHANE PU 806 E AntiBak have been tested with regard to their volatile organic compounds (VOCs). The established VOC values were below the limit values specified by the AgBB (Committee for Health-Related Evaluation of Building Products) scheme. These products have been approved by the German Institute for Structural Engineering [Deutsches Institut für Bautechnik (DIBt®)] for use in living and working spaces.

Slip-resistance

The sealing KLB-SYSTEM POLYURETHANE PU 806 E AntiBak - R10 was tested according to DIN 51130 at an inclined plane for its foothold and slip-resistance and rated with R10 according to BGR 181. In areas where food is manufactured and processes, the Employer’s liability Insurance Association often demands higher levels of slip-resistance. KLB-SYSTEM PU-BETON was tested in different design variants with R9, R10, R11, R12 and R13 and rated.

Antibacterial

The antibacterial products of KLB Kötztal Lacke + Beschichtungen GmbH were tested for their antibacterial efficacy at the Hohenstein Laboratories GmbH & Co. KG test institute. A strong antibacterial action was assigned to each product. The bacterial contamination of the surface material is reduced by more than 99.9 % thanks to the antibacterial coating and sealants.

Fire Testing

The antibacterial coating systems of KLB Kötztal Lacke + Beschichtungen GmbH were tested for fire behaviour and according to DIN 13501-1:2010-01 classified as Bfl-s1 due to their low inflammability. Please ask about the tested system configuration.

Suitability for foodstuffs

The product family KLB-SYSTEM PU-BETON and KLB-SYSTEM POLYURETHANE PU 806 E was examined according to food law requirements at the Institute Nehring GmbH (Institute for the analysis of food, consumer products and the environment). The final analysis showed that the products meet the requirements according to § 31 (1) German Foodstuffs and Consumer Products Act. The coatings did not release any substances to food, which could be questionable in terms of health, odour or taste.