0520

Antibacterial

Low maintenance

Food grade

**VISIT US ON THE INTERNET**

Further details on the extensive programme offered by KÖMMERLING Sheets can be found here:

**www.komasheets.com**

*With best regards:*

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KÖMACEL® AB
KÖMADUR® AB

KÖMACEL® AB KÖMADUR® AB

## Antibacterial ceiling and wall cladding

KÖMMERLING®

# *The perfect solution*

## *for many applications*

**KömaCel AB and KömaDur AB sheets offer active antibacterial protection and are designed for cladding the walls and ceilings of areas that must fulfil stringent hygiene requirements. The sheets are resistant to many chemicals. KömaCel AB and KömaDur AB sheets satisfy the standards demanded by the health authorities for food plant, medical facilities, catering firms, and many other areas (DIN 22196:2011).**
**The sheets' antibacterial properties offer protection against mould, bacteria, and pathogens. Our sheets use silver ions. These are a known biocide with natural antimicrobial and antiseptic properties that suppress microbial reproduction.**

## Overview of applications

### Public Areas

- Household kitchens
- Professional kitchens
- Catering
- Canteens
- Sports school pools
- Showers
- Laundries

### Medical Areas

- Healthcare pools
- Laboratories
- Pharmaceutical areas
- Retirement and nursing homes
- Hospitals
- Operating rooms
- Mortuaries

### Food Areas

- Food production
- Cold stores
- Clean rooms

### Furniture industry

- Vehicule interior fittings
- Chemical and laboratory engineering
- Shop and interior finishing

## Product properties

- Resistance to chemicals
- Active antibacterial protection
- Homogeneously distributed antimicrobial protection
- Elimination of microbes
- Long antimicrobial protection
- Antibacterial features remain even after processing
- Tested according to DIN ISO 22196:2011
- Food grade (KömaDur AB)
- Easy to clean
- Resistant despite frequent cleaning
- Impermeable, air- and watertight system
- Low maintenance
- Shock resistant
- Weldable
- Easy to install
- Very easy to bond
- Very good formability
- Flame resistant (KömaDur AB)

## Overview of processing properties

**Machining**
Cutting, sawing, turning, filing, drilling, planing, milling, grinding, and screwing

**Forming**
Stretch drawing, deep drawing, vacuum drawing, blowing, bending, folding, and punching

**Welding**
Hot gas, heated tool, and folding welding

## Environmental protection of tested reliability

**Correct storage**
Always store KömaCel AB and KömaDur AB sheets on a level surface in a dry, air conditioned environment at about 15–25 °C. The packaged sheets may not be exposed to weathering effects and direct sunlight.

**Ecological manufacture**
In line with our environmental guidelines, KÖMMERLING PVC-U sheets are safe for humans and the environment during their manufacture, use, and disposal. They are free of formaldehyde, asbestos, lindane, PCB, PCP, CFCs, cadmium, and lead and do not contain any monomers, biocides, or plasticisers. At the end of their service lives, the sheets or sheet residue can be recycled. They are processed in shredders or grinders and then introduced to the manufacturing process for new sheets.

**Certified quality**
True to our "Ever better principle", the acclaimed high quality of our products bear the hallmarks of our research and development work as well as decades of experience with synthetic materials. Tests are conducted over all stages – from the incoming raw materials to the final inspection of the finished products. Regular examinations by independent testing institutes confirm this high level of care. Logically, our quality assurance system has been DIN ISO 9001 certified.

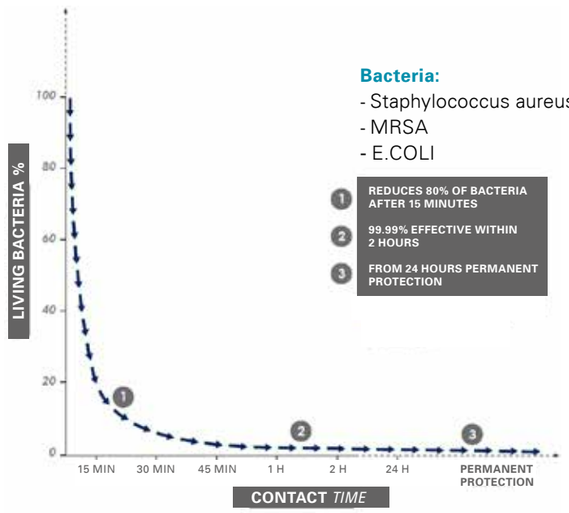
## Technical Data KömaDur AB

| Mechanical properties | Standard | Unit | KömaDur AB WA |
|---|---|---|---|
| Apparent density* | DIN EN ISO 1183 | g/cm³ | ~ 1,43 |
| Yield stress (tensile strength) | DIN EN ISO 527 | MPa | ≥ 55 |
| Elongation at tear | DIN EN ISO 527 | % | ≥ 15 |
| Flexural strength | DIN EN ISO 178 | MPa | ≥ 80 |
| Compressive strength | Based on DIN EN ISO 844 | MPa | ≥ 70 |
| Modulus of elasticity | DIN EN ISO 527-2/1A/50 | MPa | ≥ 3000 |
| Notched impact strength | DIN EN ISO 179-1ePA | KJ/m² | ≥ 4 |
| Impact strength | DIN EN ISO 179 | KJ/m² | |
| 0 °C | | | No failure |
| -20 °C | | | - |
| -30 °C | | | - |
| -40 °C | | | - |
| Ball indentation hardness (358 N/30 s) | DIN EN ISO 2039 | MPa | ~ 100 |

| Thermal properties | Standard | Unit | WA |
|---|---|---|---|
| Vicat softening temperature | DIN EN ISO 306 (Procedure B50) | °C | ≥ 75 |
| heat deformation resistance | DIN EN ISO 75 | °C | ~ 68 |
| Linear expansion coefficient – 30 °C bis + 50 °C | DIN EN ISO 11359-2 (Procedure Ae) | mm/mK | 0,08 |
| Thermal conductivity in range of 0 °C to + 60 °C | DIN EN ISO 22007 | W/mK | 0,16 |

## Effective in minutes

**The silver ions incorporated in the sheets cause an immediate antimicrobiotic activity in the sheet. Thus a large number of different microbes are killed directly on contact. Already within 15 minutes the bacteria are reduced by 80 %. Within 2 hours there is a permanent protection of 97,5 %.**




**Bacteria:**
- Staphylococcus aureus
- MRSA
- E.COLI

1. REDUCES 80% OF BACTERIA AFTER 15 MINUTES
2. 99.99% EFFECTIVE WITHIN 2 HOURS
3. FROM 24 HOURS PERMANENT PROTECTION

## Technical Data KömaCel AB

| Mechanical properties | Test method | Unit | Thickness (mm) 4, 5, 6 | Thickness (mm) 8, 10, 13 | Thickness (mm) 15, 17, 19 |
|---|---|---|---|---|---|
| Apparent density* | DIN EN ISO 1183 | g/cm³ | 0,55-0,70 | 0,50-0,55 | 0,50-0,55 |
| Yield stress (tensile strength) | DIN EN ISO 527 | MPa | ≥ 20 | ≥ 13 | – |
| Elongation at tear | DIN EN ISO 527 | % | ≥ 30 | ≥ 15 | – |
| Flexural strength | DIN EN ISO 178 | MPa | ≥ 30 | ≥ 20 | ≥ 20 |
| Compressive strength | DIN EN ISO 844 | MPa | > 8 | > 3 | > 3 |
| Modulus of elasticity | DIN EN ISO 527-2/1A/50 | MPa | ~ 1100 | ~ 800 | ~ 800 |
| Impact strength | DIN EN ISO 179 (Based on) | kJ/m² | MW 15*<br>MW 13*<br>MW 10* | MW 20*<br>MW 15*<br>MW 10* | MW 25*<br>MW 20*<br>MW 15* |
| Ball indentation hardness (132 N/30 s) | DIN EN ISO 2039-1 | MPa | ≥ 15 | ≥ 15 | ≥ 20 |

| Thermische Eigenschaften | Test method | Unit | Thickness (mm) 4, 5, 6 | Thickness (mm) 8, 10, 13 | Thickness (mm) 15, 17, 19 |
|---|---|---|---|---|---|
| Vicat softening temperature | DIN EN ISO 306 (Procedure A50) | °C | ≥ 75 | ≥ 75 | 77 |
| Heat deformation resistance | DIN EN ISO 75 (Procedure Ae) | °C | ~ 56 | ~ 63 | – |
| Linear expansion coefficient – 30 °C bis + 50 °C | DIN EN ISO 11359-2 | mm/mK | ≤ 0,08 | ≤ 0,08 | ≤ 0,08 |
| Thermal conductivity in range of 0 °C to + 60 °C | DIN EN ISO 22007 | W/mK | 0,10 | 0,05-0,07 | 0,05-0,07 |

## Delivery programme KömaCel AB

| Dimensions (mm) | White 654 similar to RAL 9016 in thickness (mm) |
|---|---|
| 2440 x 1220 | 4 |
| 3050 x 1220 | 4 |
| 2440 x 1220 | 5 |
| 3050 x 1220 | 5 |
| 2440 x 1220 | 6 |
| 3050 x 1220 | 6 |
| 3000 x 1250 | 8 |
| 3000 x 1250 | 10 |
| 3000 x 1250 | 13 |
| 3000 x 1250 | 15 |
| 3000 x 1250 | 17 |
| 3000 x 1250 | 19 |

## Lieferprogramm KömaDur AB

| | |
|---|---|
| Length | from 1.000 to 4.050 |
| Width | 1220 mm *1 |
| Thickness | 1 - 2,5 mm |
| Quality | WA 654 |
| Surface | mat *2 |

*1 Other widths on request
*2 Glossy surface on request

Special qualities on request

## Chemical resistance

| Medium | Conc. | Temperature | |
|---|---|---|---|
| | % | 20 °C | 60 °C |
| **Organic chemicals** | | | |
| Formic acid | 10 | ++ | ++ |
| Formic acid | 100 | ++ | + |
| Aniline | - | - | - |
| Ethanol | - | ++ | + |
| Benzine-benzene mixture (BV-Aral) | - | - | - |
| Benzene | - | - | - |
| Butanol | - | ++ | ++ |
| Cyclohexane | - | ++ | + |
| Cyclohexanol | - | ++ | ++ |
| Decalin | - | ++ | ++ |
| Diesel fuel | - | ++ | - |
| Diethyl ether | - | - | - |
| Pure acetic acid | - | ++ | - |
| Acetic acid | 10 | ++ | ++ |
| Formaldehyde | - | ++ | + |
| Glycol | - | ++ | ++ |
| Fuel oil | - | ++ | k. A. |
| Heptane | - | ++ | - |
| Hexane | - | ++ | ++ |
| m-cresol | - | + | - |
| White spirit | - | ++ | 0 |
| Machine oil | - | ++ | ++ |
| Methanol | - | ++ | + |
| Olive oil | - | ++ | ++ |
| Petroleum ether | - | ++ | + |
| Turpentine | - | ++ | 0 |
| Toluene oil | - | - | - |
| Transformer oil | - | ++ | ++ |
| Xylene | - | - | - |

| Medium | Conc. | Temperature | |
|---|---|---|---|
| | % | 20 °C | 60 °C |
| **Inorganic chemicals** | | | |
| Ammonia | 24 | ++ | - |
| Chromosulphuric acid | - | ++ | 0 |
| Potash lye | 10 | ++ | ++ |
| Aqua regia | - | ++ | + |
| Sodium chlorite | 40 | ++ | ++ |
| Sodium dithionite | 10 | ++ | ++ |
| Sodium hypochlorite | 40 | ++ | ++ |
| Soda lye | 10 | ++ | ++ |
| Soda lye | 40 | ++ | ++ |
| Phosphoric acid | 10 | ++ | ++ |
| Phosphoric acid | 85 | ++ | ++ |
| Nitric acid | 10 | ++ | ++ |
| Hydrochloric acid | 10 | ++ | ++ |
| Hydrochloric acid | 35 | ++ | ++ |
| Sulphuric acid | 10 | ++ | ++ |
| Sulphuric acid | 96 | ++ | ++ |

| | | |
|---|---|---|
| ++ | good resistance | Weight difference under 1% |
| + | resistant | Weight difference 1% – 5% |
| O | partially resistant | Weight difference 5% – 10% |
| – | not resistant | |

Other chemicals on request.

## Antimicrobial properties

| Description | Standard | Unit | Value |
|---|---|---|---|
| Staphylococcus Aureus | DIN ISO 22196:2011 | % | 99,76 |
| Escherichia Coli | DIN ISO 22196:2011 | % | 99,82 |