

Cladding for Sterile Environments



Kleenclad

Why Kleenclad works for pharmaceutical manufacturing

Kleenclad is a high-performance antimicrobial wall cladding system engineered for controlled environments. From aseptic filling and oral solid dose to biologics, packaging and gowning, Kleenclad helps facilities meet GMP hygiene mandates while supporting contamination control, audit readiness and brand credibility.



Ideal applications in pharmaceutical facilities



Aseptic & Sterile Filling Suites

Grade A/B classified zones where particle and bioburden control are non-negotiable.



Oral Solid Dose & Tablet Lines

Granulation, compression and coating areas with dust load and frequent washdown.



Cleanroom Corridors & Airlocks

Circulation and pressure-cascade zones that demand a seamless, wipe-clean envelope.

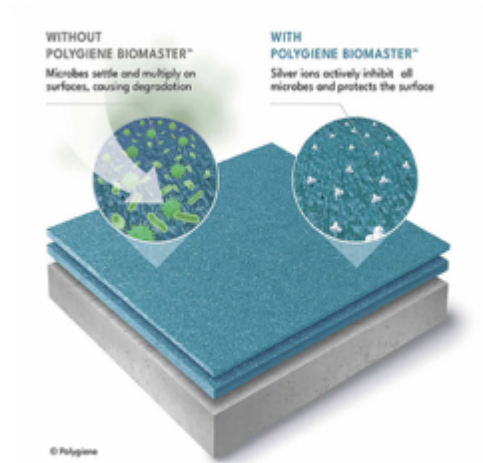


Gowning & Personnel Areas

The first line of defence against contamination entering classified space.

How Kleenclad works

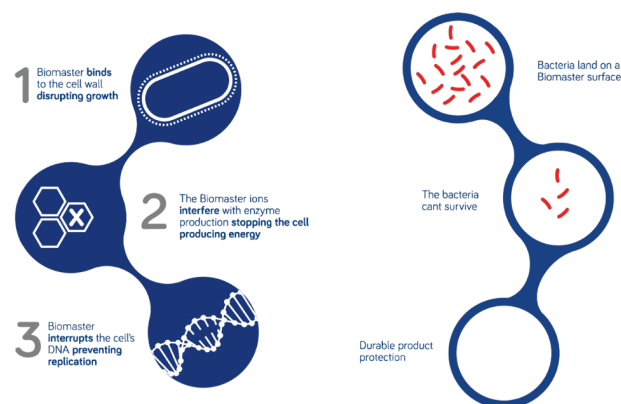
Kleenclad is manufactured with Polygiene Biomaster™ — a silver-ion antimicrobial technology built into the material, not applied as a surface coating. Silver ions inhibit the growth of bacteria, mould and fungi on the surface.



Surface protection — with vs. without Polygiene Biomaster™.

- ✓ Built into the material — protection won't wash off or wear away.
- ✓ Reduces microbial load on surfaces between cleaning cycles.
- ✓ Lasts the lifetime of the panel; no reapplication needed.
- ✓ Inhibits growth of common environmental organisms such as E. coli, S. aureus and mould.

How the silver-ion technology works



Built-in. Long-lasting. No reapplication. Antimicrobial action complements — but does not replace — routine cleaning and standard hygiene protocols.

Pharmaceutical segments **we serve**



Sterile & Injectables

CHALLENGES

Grade A/B classification, particle & bioburden limits, frequent sanitisation and demanding regulatory audits.

KLEENCLAD ADVANTAGE

Seam-welded, crevice-free envelope with coved junctions for full sanitisation.



Oral Solid Dose

CHALLENGES

Fine dust load, granulation residue, frequent washdown and cross-contamination between products.

KLEENCLAD ADVANTAGE

Wipe-clean, anti-static-friendly panels with zone-coded colour for product segregation.



Biologics & APIs

CHALLENGES

Cold-chain handling, aggressive CIP/SIP chemistry and strict mould/Listeria-type bioburden control.

KLEENCLAD ADVANTAGE

Chemical- and moisture-resistant surfaces rated for chilled and ambient ranges.



Packaging & Labelling

CHALLENGES

High-traffic handling, equipment impact and visual hygiene perception during audits.

KLEENCLAD ADVANTAGE

Impact-resistant panels that keep a clean, professional finish under daily use.

OPERATIONAL IMPACT

- Helps reduce contamination risk and batch rejections.
- Durable surface that can lower long-term upkeep vs. tiles.
- Supports audit readiness and visual hygiene perception.
- Easy-clean surfaces help speed up sanitation cycles.

Regulatory alignment & certifications

Kleenclad supports compliance with the standards pharmaceutical facilities are measured against — at home and across export markets.

**EU GMP — incl. Annex 1**

Sterile manufacturing & contamination control

**WHO-GMP**

Global good manufacturing practice

**ISO 14644**

Cleanroom classification & control

**US FDA cGMP — 21 CFR 210/211**

US finished-pharmaceutical requirements

**ISO 22196 — Antimicrobial surface efficacy**

Measurement of antibacterial activity on plastics & non-porous surfaces

INSTALLATION & TECHNICAL SUPPORT

Available in multiple sizes & finishes

- Flush-mounted or coved edges.
- Seam welding for wet and washdown zones.
- Custom colour coding for zone segregation.
- Site surveys and layout planning.
- Retrofit strategies for active facilities.
- Installation supervision and post-install audits.

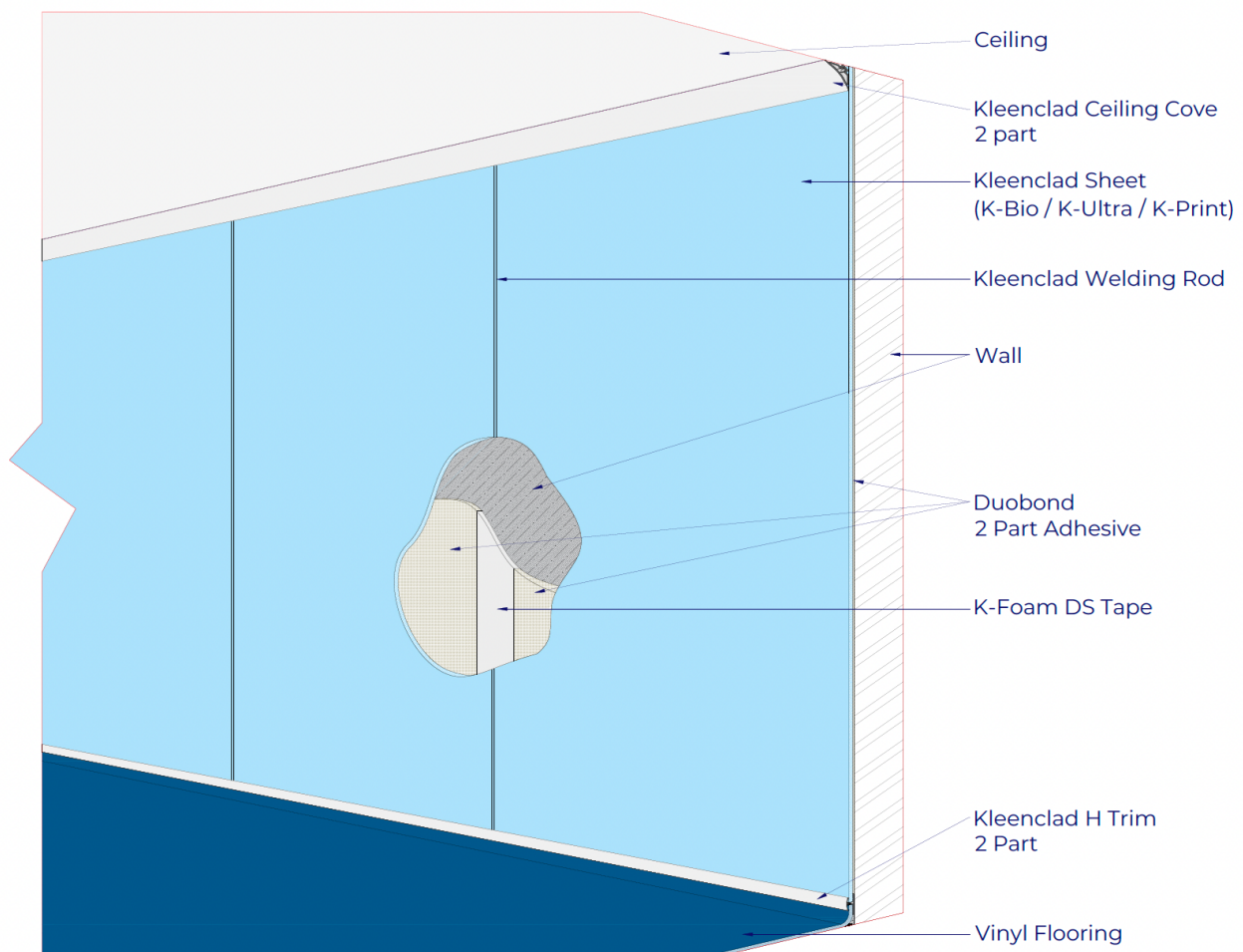
TECHNICAL NOTE — SERVICE TEMPERATURE

Recommended for use in areas where service temperatures remain between -10°C and $+60^{\circ}\text{C}$. Kleenclad PVC cladding suits ambient and chilled controlled environments within this range. It is not recommended for sustained temperatures above $+60^{\circ}\text{C}$ or below -10°C , including blast-freezing or deep-freeze cold rooms. Confirm site conditions with our technical team before specification.

A continuous, crevice-free hygienic envelope — engineered for the spaces where **contamination control** is non-negotiable.

Installation system detail

A complete Kleenclad installation integrates panels, trims, adhesives and welded joints into one continuous hygienic envelope — with coved junctions at wall-to-ceiling and wall-to-floor that eliminate dirt traps and support full washdown.



System components

- ✓ **Kleenclad Sheet** — K-Bio / K-Ultra / K-Print hygienic PVC panels.
- ✓ **Kleenclad Welding Rod** — heat-welded seams for water-tight wet zones.
- ✓ **Kleenclad Ceiling Cove (2-part)** — coved wall-to-ceiling junction.
- ✓ **Kleenclad H-Trim (2-part)** — clean wall-to-floor termination.
- ✓ **Duobond 2-Part Adhesive** — high-strength panel-to-wall bond.
- ✓ **K-Foam DS Tape** — double-sided tape for instant initial hold.
- ✓ **Coved junctions** — eliminate 90° dirt traps at floor and ceiling.
- ✓ **Vinyl flooring compatible** for a fully sealed hygienic envelope.

Independently tested & certified

Every Kleenclad system is backed by accredited test certificates and declarations across hygiene, fire, durability and chemical safety.

 ANTIMICROBIAL EFFICACY Certificate of Antimicrobial Efficacy K-Bio PVC Sheets · ISO 22196  CERTIFIED	 ANTIMICROBIAL EFFICACY Certificate of Antimicrobial Efficacy BIOWELD Weld Rods · ISO 22196  CERTIFIED	 INGRESS PROTECTION Certificate of IP66 Water & dust · BS EN 60529  CERTIFIED
 VOC CONTENT Certificate of VOC Content DUOBOND · Directive 2004/42/EC  CERTIFIED	 FIRE CLASSIFICATION Certificate of Fire Classification B-s3, d0 · BS EN 13501-1  CERTIFIED	 ADHESIVE STRENGTH Certificate of Adhesive Strength Lap Shear · up to 326.89 N/mm  CERTIFIED
 PHYSICAL PERFORMANCE Certificate of Impact Resistance IK10 · BS EN 62262  CERTIFIED	 MATERIAL SAFETY Certificate of Chemical & Heavy Metal EN 15102:2007 + A1:2011  CERTIFIED	 DURABILITY Certificate of Salt & Mist Durability BS EN 60068-2-11:1999  CERTIFIED
 CE CONFORMITY Certificate of CE Conformity — K-Bio EN 15102 · Notified Body 0071  CERTIFIED	 CE CONFORMITY Certificate of CE Conformity — K-Guard EN 15102 · Notified Body 0071  CERTIFIED	 CE CONFORMITY Certificate of CE Conformity — K-Ultra EN 15102 · Notified Body 0071  CERTIFIED
 CHEMICAL REGULATION Certificate of REACH Compliance Regulation (EU) 1907/2006  CERTIFIED	 MANUFACTURER DECLARATION Certificate of VCM & VOC Class A+ VOC · VCM < 0.1 mg/kg  CERTIFIED	



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