



altro

the future is safer with altro



Industry leading, hygienic wall cladding for clean industrial markets

Pharmaceutical, biotech, cosmetics and high purity chemical industries

Thirty three years of innovative, hygienic wall cladding systems

Altro Whiterock

We invented hygienic wall cladding systems back in 1982. Since then, we've gone from strength to strength to bring you even more choice in one fully integrated system.

Altro Whiterock is not just a PVCu sheet. It incorporates wall cladding panels, preformed internal and external corners, accessories, adhesives and more – all designed for perfect compatibility.

Altro Whiterock hygienic PVCu wall cladding systems are durable, hygienic coverings for internal walls. They are designed for environments that need to meet tough hygienic standards. While we have seen tremendous success with this product for over thirty years in many sectors like wet environments, healthcare and commercial kitchens, the appeal of our fully integrated system is much broader for clean industrial markets.



Peace of mind

We're committed to supplying high performance products, in all aspects of service and support. This starts with your initial inquiry and then continues through installation. Even afterwards, we're still there to listen to you and help you, whatever the situation. We back Altro Whiterock with a 20-Year Warranty because we have confidence that it will perform in even the most demanding environments.

Partnering with you, supporting you, valuing you. It's our promise.



Hygiene is about the total environment, **from floor to ceiling**. It's about how we **create** our products; the **technologies** we use and the **innovative properties** that allow you to keep your installation hygienic for years.

Choosing Altro Whiterock for **clean industry**

Typical applications

- Pharmaceutical labs
- Pharmaceutical manufacturing
- Clean rooms
- Sterilization rooms
- Biotechnology labs
- Medical device manufacturing
- Decontamination rooms
- Cosmetics manufacturing
- Chemical manufacturing
- High purity manufacturing

Interior finishes such as wall cladding, are under close scrutiny in these application areas. Federal regulation requires that finishes must be smooth, non-porous, non-shedding, easy to clean and resistant to chemicals and staining. They must be installed seamlessly to prevent cracks, gaps and fissures.

Your business is to develop and deliver safe and effective pharmaceuticals to the marketplace. Our business is to provide you with durable, hygienic interior finishes that will support your work. Whether you are producing active pharmaceutical ingredients or finished pharmaceuticals, Altro Whiterock is the walling solution for your facility.

Features and benefits

- Class A fire rated on drywall and cement board
- Consistent 2.5mm thickness
- Heat welded seams
- Fully bonded to substrate
- Impervious to water ingress
- Surface does not promote bacterial or fungal growth
- Rated for ISO Class 5 + clean rooms
- Thermoformable on site
- Extremely impact resistant
- Highly stain and chemical resistant
- Withstands robust cleaning procedures including pressure washing
- Non-porous
- Non-shedding
- Compatible with a variety of flooring
- Good indoor air quality (No VOCs)
- Lead free, phthalate free
- Maintains consistent thickness even after thermoforming
- Internal and external preformed corner accessories available

Altro Whiterock's smooth, durable, hygienic and easy to clean surface can help you meet demanding regulatory requirements, maximize your production time, and ultimately increase your speed to market – with no surprises along the way.

Once installed, Altro Whiterock wall panels are heat welded together using a color matched vinyl weldrod. This process creates a smooth, seamless surface that is easy to clean and ensures no place for contaminants to grow.



Heat welded installation

Accessories for pharmaceutical installations

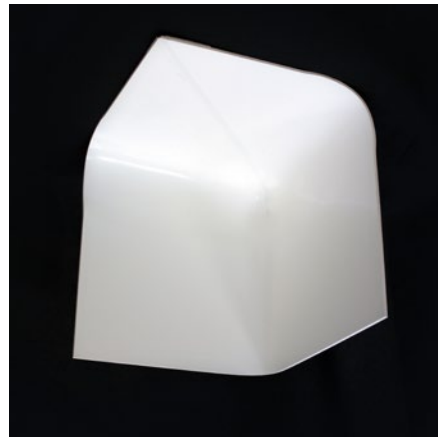
We also offer a variety of accessory trim pieces to decrease installation time and ensure a more successful installation in those trickier areas.

We understand that bringing a drug to market is a long, expensive process, and every day saved is extremely valuable. To help with installation time, we offer a variety of preformed accessory pieces to ensure a fast and successful installation.

We offer both preformed ceiling to wall corner accessories that are available in a three-way internal and external variation using a 2" radius. For corner pieces, we also offer both 90° external corners and R-shaped internal bends as well.



Outer corner



Three way corner



Sanitary sealant



90° external corner



R-shaped internal corner



Vinyl weldrod





Moving away from epoxy coating on wall surfaces

New industry trend: moving away from epoxy coating on wall surfaces

A single spider crack or a chip in epoxy paint can cause a potential for a costly shutdown of pharmaceutical facilities. More and more facilities are switching away from epoxy resins for their walls and moving towards more robust wall protection.

Consider this, with carts and other equipment moving around, what is actually protecting your walls? In epoxy installations your walls are protected by a thin coating of paint. A coating that can be thinner in some spots than others. This offers little in the way of wall protection and means your walls are only as strong as drywall.

Altro Whiterock is made of a consistent 2.5mm thick durable PVCu and is backed by a full contact adhesive. This provides impressive amounts of impact resistance and durability. Unlike epoxy, it will not chip, flake or crack, which is particularly important in new construction as settling occurs.

Altro Whiterock vs. epoxy paint

The superior construction of Altro Whiterock wall protection affords significant advantages over traditional epoxy coatings.

- Faster installation time
- Consistent 2.5mm thickness
- Impressive impact resistance
- Will not develop hairline cracks
- 20-year warranty vs. 1 year for most epoxy systems

Stain and chemical resistance

Chemical	Concentration	Temp.	
A			
Acetic aldehyde	40%	20	✓
Acetic aldehyde	100%	20	
Acetic anhydride	100%	40	
Acetic acid	up to 60%	40	✓
Acetic acid	100%	40	
MeUc acid	80%	20	✓
Acetone	dilute	20	
Adipic acid	saturated solution	40	✓
Ammonia (gas)	100%	40	✓
Ammonia (solution)	saturated	40	✓
Amyl acetate		20	
Aniline	100%	20	
Aniline hydrochloride	saturated solution	40	
Aniline solution	saturated	20	
Anthraquinone		20	✓
Aqua regia		40	✓
Arsenic acid	up to 80%	40	✓
B			
Barium oxide	dry	40	✓
Benzene	100%	40	
Benzene aldehyde	0.10%	60	
Betadine (10% povidone iodine)		20	✓
Bleach		20	✓
Blue water gas		20	✓
Boric acid	dilute	40	✓
Boric acid	saturated	40	✓
Bromine (liquid)	100%	40	
Bromic acid	up to 10%	40	✓
Bromic acid	45%	40	✓
Bromine water		40	✓
Butane		20	✓
Butanol	100%	40	✓
Butyl acetate	100%	20	
C			
Carbamide	33%	40	✓
Carboxylic acid (dry gas)	100%	40	✓
Carboxylic acid (wet)	all concentrations	40	✓
Carboxylic acid dissolved under pressure	saturated	20	✓
Ceryl alcohol	100%	40	✓
Chlone acid	over 30%	40	✓
Chloric acid	30% 19° H	40	✓
Chlorine gas (dry)	100%	20	✓
Chlorine gas (wet)	0.50%	20	✓
Chlorine water	saturated	40	✓
Chlorine water	12° 5	40	✓

✓ = Resistant

Chemical	Concentration	Temp.	
Chlorine water	48%	40	✓
Chlorobenzene		20	
Chloroform		20	
Chromic acid Solution	up to 50%	40	✓
Citric acid	up to 20%	40	✓
Citric acid	saturated	40	✓
CIP 100®	2%	20	✓
CIP 100®	2%	80	✓
CIP 200®	2%	20	✓
CIP 200®	2%	80	✓
Cresylic acid	up to 100%	60	
Cupramonia compounds	commercial	20	✓
Cyclohexanol	100%	40	
Cycrohexanone	100%	40	
D			
Developer		40	✓
Dextrin solution	18%	20	✓
Dextrin solution	saturated	20	✓
Dichloroethane	100%	40	
E			
Ethyl acetate	100%	20	
Ethyl chloride		20	
Ethyl ether	100	20	✓
Ethyl glycol (Callosolve)		40	✓
Ethylene dichloride	100%	20	
Ethylene oxide	100%	40	
F			
Fatty acids	100%	40	✓
Formaldehyde	40%	40	✓
Formic acid	up to 100%	40	✓
Furfural		40	
G			
Glykol	commercial solution	40	✓
Glycerine	all concentrations	40	✓
H			
Heavy benzene solvents		40	✓
Heptane		40	✓
Hexanol, tertiary	100%	40	✓
Hydrochloric acid, gas	all concentrations	40	✓
Hydrofluoric acid, traces		40	✓
Hydrogen, gas	100%	40	✓
Hydrogen peroxide	up to 30%	40	✓
Hydrogen tetrachloride	100%	40	
Hydroxylamine sulphate	12%	40	✓
I			
Iodine		40	✓

✓ = Resistant

Chemical	Concentration	Temp.	
L			
Lactic acid	up to 10%	40	✓
Lactic acid	90%	20	✓
LpH® se	1:128"	20	✓
LpH® se	1:128"	40	✓
M			
Methyl alcohol	100%	40	✓
Methyl chloride	100%	20	
Methyl ethyl ketone		40	
Methyl sulphate		40	✓
Methyl sulphuric acid	all concentrations	40	✓
Methylbenzene (toluene)	100%	40	
Methylene chloride	100%	20	
Monochloro-acetylic acid	85%	40	✓
Monochloro-acetylic acid	100%	40	✓
N			
Naphthalene	concentrated	40	
Nitrate gas	concentrated	60	
Nitric acid	0%-50% -23-25° N	40	✓
Nitric acid	98% -40° B	20	
Nitrate products, traces		40	✓
O			
Oils and greases		40	✓
Oleic acid		40	✓
Oxalic acid	dilute	40	✓
Oxalic acid	concentrate	40	✓
Oxygen	fully concentrated	40	✓
Ozone	100%	20	✓
P			
Paraffin emulsion		40	✓
Permutite-softened water		40	✓
Phenol / carbolic acid	up to 90%	60	
Phenyhydrazine	100%	40	
Phenyhydrazine oxychloride	100%	40	
Phenyhydrazine carbon oxychloride	100%	20	✓
Phosphale trichloride		40	
Photographic emulsion		40	✓
Photographic fixing agents		40	✓
Phosphorus, white		20	✓
Picric acid	1%	20	✓
Potassium solution	up to 40%	40	✓
Potassium solution	50-60%	40	✓
Propafol, liquid	100%	20	✓
Propane, gas	100%	20	✓
R			
Residual gas with sulphuric acid	all concentrations	40	✓

✓ = Resistant

Chemical	Concentration	Temp.	
S			
Salts of Aluminum	suspension or dilute	40	✓
Salts of Ammonia	concentrated	40	✓
Salts of Antimony	concentrated	40	✓
Salts of Barium	concentrated	40	✓
Salts of Bismuth	concentrated	40	✓
Salts of Calcium	concentrated	40	✓
Salts of Chromium	concentrated	40	✓
Salts of Copper	concentrated	40	✓
Salts of Iron	concentrated	40	✓
Salts of Lead	concentrated	40	✓
Salts of Nickel	concentrated	40	✓
Salts of Potassium	concentrated	40	✓
Salts of Silver	concentrated	40	✓
Salts of Soda	concentrated	40	✓
Salts of Tin	concentrated	40	✓
Salts of Zinc	concentrated	40	✓
Silver nitrate		20	✓
Silver solution		40	✓
Smoke from dry combustion		40	✓
Soap solution	fully concentrated	40	✓
Soda solution	50-60%	40	✓
Sodium hypochlorite			✓
Spor-Klenz®	100%	20	✓
Spor-Klenz®	100%	40	✓
Stearic acid	100%	40	✓
Sulphuric acid	up to 40% -34° B	40	✓
Sulphuric acid	40-80% -34-61° B	40	✓
Sulphuric acid	80-95% -61-65° B	40	✓
Sulphuric acid	95% -66° B	40	✓
T			
Tartaric acid	up to 10%	40	✓
Tartaric acid	saturated	40	✓
Tetraethyl lead	100%	20	✓
Tetrahydrofuran		40	
Thionyl chloride		20	
Tributyl phosphate		40	
Trichloroethene	100%	20	
Triethanolmine	100%	20	✓
Triethylamine		40	✓
Turpentine spirits		40	✓
V			
Vegetable tannage extracts	solution	20	✓
Vesphene® Ilse	1:64"	20	✓
Vesphene® Ilse	1:64"	40	✓
Vinyl acetate	100%	20	

✓ = Resistant

Cleaning and maintenance

Hygienic areas are consistently exposed to very aggressive chemicals. Antiseptics and industrial cleaners can damage or stain surfaces, particularly if not used correctly. Altro Whiterock hygienic wall cladding is manufactured with virgin grade polymers, resulting in a PVC that provides high chemical resistance, maintaining the product's appearance, as well as hygiene.

Recommended cleaners

To meet demanding regulatory requirements, pharmaceuticals require a well-planned program to disinfect a variety of surfaces in order to maintain microbial control. As part of this program, facilities must use a multitude of different cleaning and disinfecting chemicals at various dilution rates.

We have conducted extensive testing on some of the most commonly used cleaners and disinfectants provided by Steris Corporation. These are listed below. Altro Whiterock has been proven to work well with these chemicals.

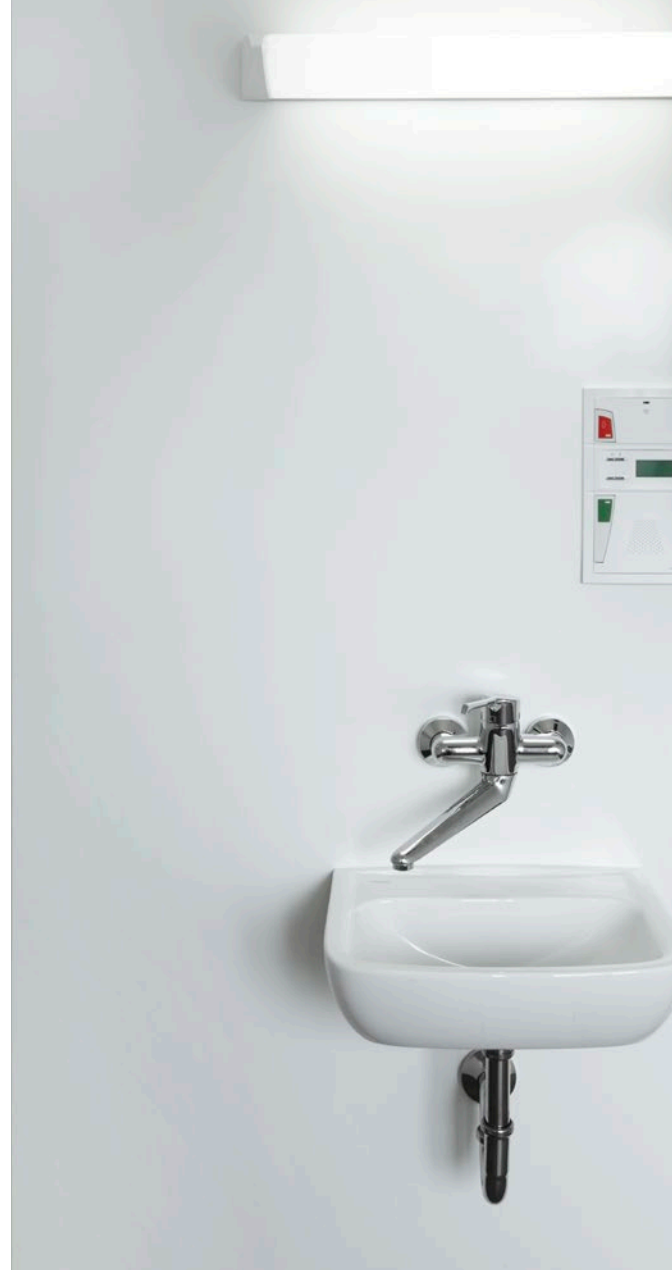
Spor-Klenz®

Vesphene® Ilse

LpH® se

CIP 200®

Samples were tested with these Steris cleaners at various dilution rates with water. The drying process of these chemicals typically takes 10 minutes, however, in these tests, the sample exposure was obtained by full immersion in the chemical for seven days. These extreme measures were taken to represent a worst case scenario. In all scenarios, with all chemicals, Altro Whiterock performed extremely well.



Cleaning guide

Initial cleaning

Once all panels and joints are installed, remove the protective film and clean all surfaces down with an anti-static solution or anti-static wipes. This is required as the panel may have static build up and any dust in the atmosphere will adhere to the surface of the panel.

Regular cleaning

- Altro Whiterock can be cleaned with a diluted soap/detergent solution, such as Altro Whiterock PVC wall cleaner (for stubborn stains) or AltroClean 44 (degreaser).
- When cleaning Altro Whiterock's surface, we recommend the temperature of water does not exceed 140° F (60° C).
- Pressure cleaning with hot water may be used with the pressure nozzle, a minimum of 2 feet (600mm) away from the surface.
- To reduce the buildup of static, regularly cleaning the panels with an anti-static solution or anti-static wipes is recommended.
- Some cleaning agents may adversely affect Altro Whiterock. See Altro's chemical resistance chart for reactions to common chemicals on pages 7-8.
- Do not use materials containing abrasives or solvents.

Technical chart		Altro Whiterock Standard White
Warranty		20 years
Composition		Extruded semi-rigid PVCu sheet
Thickness		.10" (2.5mm)
Panel sizes		4' x 8'2" (1.22m x 2.5m) or 4' x 9' 10.25" (1.22m x 3.0m)
Weight		8' 2" panel - 24lbs or 9' 10.25" panel - 29lbs
Density (g/cm ³)	ISO 1183	1.39
Impact resistance	ASTM D5420 Gardner Impact	exceeds 160 inch pounds
Light reflectance value (LRV)	D65 artificial daylight	89
Cleanroom standards	ISO 14644-1	ISO Class 5 and above
Fire Testing - ASTM E84 method Note: Many manufacturers only test their product on cement board or with no substrate. Altro Whiterock achieves a Class A rating when tested on cement board and on dry wall simulating a true, real world scenario.	ASTM E84 - 08 Surface burning	Cement board: Class A Flame spread index: 15 Smoke developed: 350
		Drywall: Class A Flame spread index: 20 Smoke developed: 350
	CAN ULC S102 Surface burning	Flame spread rating: 10 Smoke developed classification: 300
Max service temperature		140 °F (60 °C)
Indoor air emissions	EN ISO 16000-10	No VOC
Flexural strength (Mpa)	ISO 178	79.8
Tensile strength (Mpa)	ISO 527	48
Shore hardness, Type D	ISO 868	79
Surface resistance ROE (Ω)	DIN IEC 60 167	2.00E +14
Volume resistance RD (Ω)	DIN IEC 60 093	6.90E +13
Dielectric strength (KV/mm)	DIN IEC 243	16.8
Dielectric constant	DIN 53483	3.2
Dielectric loss index	DIN 53483	0.02
Thermal conductivity - "K Value" (W/mK)	DIN 52612	0.16
"U Value" bonded to 100mm block wall (W/m ² °C)	DIN 52612	1.8
Coefficient of linear thermal expansion at 68°F (20°C) after 1 hr storage at 194°F (90°C) (10 ⁴ /K)	DIN 53752	7.10 ⁻⁵
Compressive strength (N/mm ²)	DIN 53454	70
Vicat softening point VST/B	ISO 306	176 °F (80 °C)
Water absorption	ISO 62	24 hours - 0.030% 168 hours - 0.093% 216 hours - 0.106%
Heat distortion temperature	ISO 75-2	140 °F (60 °C)
Moisture vapor transmission rate (MVTR)	ASTME96	0.120 g/m ² /24hrs
Water vapor resistivity	ASTME96	3.82 x 10 ⁵ GN.D/Kg.m



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Altro Whiterock wall cladding and accessories are available through your SPS representative.



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