WCB
WATERPROOF
CONSTRUCTION
BOARD

- WATERPROOF
- WOOD REPLACEMENT
- ANTI-BACTERIAL PROTECTION
- ANTI-FRAUD
- RECYCLABLE
- FIRE RESISTANT

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SEALWISE®

WCB
WATERPROOF
CONSTRUCTION
BOARD

Technical Guide

SEALWISE®

WCB
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CONSTRUCTION
BOARD

Sealwise WCB key benefits

WATERPROOF

WOOD REPLACEMENT

ANTI-BACTERIAL PROTECTION

ANTI-FRAUD

FIRE RESISTANT

RECYCLABLE

Ideal for use in the following sectors:

Dental | Hospitals | GP Surgeries | Education
Laboratories | Care Homes | Cladding & cubicles
Agriculture | Print, sign & display | Construction
Kitchen & bathrooms | Flood protection | Marine

Contents

What is Sealwise WCB?

Waterproof Construction Board (WCB) from Sealwise is an innovative panel product.

Unlike conventional wood-based products, such as MDF, plywood and particleboard WCB is made from polyvinyl chloride.

Whilst some plastics, such as PE,PP, PET and PS, are totally dependent on non-renewable sources of oil or gas, PVC is thermoplastic, made from chlorine and carbon, and is less reliant than other polymers on crude oil or natural gas, meaning WCB has exceptional ecological properties. As the name may suggest, WCB is completely waterproof, so can be used in applications where traditional wood-based products can't. What's more, the chlorine, derived from industrial grade salt, also gives PVC excellent fire resistance.

For many years, PVC was considered harmful to the environment because it takes so long to biodegrade, but recent advances in recycling processes mean it is now viewed as one of the greenest materials available. WCB is recycled and can be recycled again and again in most cases.

Sealwise WCB surfaces are mostly virgin PVC. Plasticisers are added to it to help with manufacture and increase its fluidity.

The core is PVCU - commonly known as UPVC - and has much larger recycled content. This material differs from the outer PVC as it doesn't contain plasticisers, which along with its closed cell technology, all helps to add rigidity to the sheet material.

Sealwise WCB is:

- 100% WATERPROOF
- ECO FRIENDLY
- FIRE RESISTANT
- ANTI-BACTERIAL
- ANTI-STATIC
- RESISTANT TO CHEMICALS
- UV STABLE
- EASY TO FABRICATE
- RECYCLED / RECYCLABLE
- EXTREMELY DURABLE
- NON TOXIC
- SOUND ABSORBENT
- LIGHTWEIGHT
- THERMALLY STABLE
- DIRECT PRINTABLE
- ANTI-FRAUD

The Sealwise story

WCB is the brainchild of the Sealwise Managing Director Paul Huggins.

Paul gradually developed the idea after contracting a chronic condition which forced him to spend lengthy periods in hospital.

In 2010, Paul was left with temporary paralysis in his lower body, and had to spend weeks in hospital, unable to walk. He saw first-hand how unfit for purpose much of the furniture was in hospital. He struggled to shower due to inadequate shower room facilities and saw patients contract MRSA and other infections in what should be the most sterile of environments.

Over Paul's four year rehabilitation period, he focused on what he had seen in hospital, and the importance of finding a material that was durable, easy to keep clean, waterproof, and above all, able to control infection. Before the illness Paul managed a cabinet making firm, so fully understood the traditional materials and their limitations. Combining his experience and knowledge, WCB was developed.

"Obviously there's lots more to the story and how difficult it's been for us all," explains Paul. "But the outcome is that Sealwise WCB is now specified in hospitals, dental surgeries and laboratories throughout the UK, which I'm extremely proud of. However, it's also clear that WCB shouldn't be limited to healthcare environments. The properties and usability means that WCB can be used anywhere that panel products are currently used with immense advantages. It has been a real journey of discovery and we, ourselves, have been surprised by its versatility - the fact that it is as durable externally as well as internally, for example, and that it is a printable medium with the ability to digitally print directly onto it."

Why choose Sealwise WCB?

Sealwise WCB v MDF and MFC

The use of MDF - Medium Density Fibreboard, and MFC - Melamine-faced chipboard, have become widespread in our homes, workplaces and retail environments, mainly because they're relatively inexpensive and versatile. But how do they measure up to Sealwise WCB?

To understand more, you need to know what these materials are made from.

Both MDF and chipboard are made using wood particles of varying sizes. The sheets are produced as a semi-finished product, which isn't usable for most applications, so they require a coating or laminate to complete them.

To bind the wood particles together requires chemicals - often resins which contain formaldehyde, these have proven to be not good for the environment or health in general. Millions of tons of chipboard and MDF are sent to landfill every year. What's more, once these wood-based panels begin to decompose they emit C02, a powerful greenhouse gas.

Many countries limit the use of such materials but the UK is one of the countries with the lowest regulations around such products. In just one year the UK sends around 400,000 tons of particleboard to landfill. If this were stacked, as 8x4 sheet, on top of each other, the pile would rise 173km into the sky, 20km beyond the satellites which give us our mobile phone network in space. This is about 540 times the height of the Shard in London.

How waterproof is MDF?

The more chemicals, essentially resins and wax, are pumped into MDF, the more water-resistant the material becomes, and the worse the effect on the environment too. But it is never true to describe it as fully waterproof, as the material still absorbs water and liquids. This is why manufacturers refer to this product as MR MDF, moisture resistant MDF and not waterproof.

Test results on wood-based panels

We know from extensive testing that if a material absorbs liquids, then it also takes in whatever's in the liquid too - such as bacteria. Wet MDF provides a moist, warm nutritious environment for the culture to grow - turning the material's damp inside into the perfect home and breeding ground for mould and bacteria such as E.coli and MRSA.

Consider for a moment that in an average hospital, there are around 3,500 cabinets, mostly made from MDF or chipboard. Cleaning this furniture is hampered by loose joints, which allow germs to grow even further, and of course even the most effective cleaner can only clean the surface.

Sealwise WCB truly waterproof

Now compare that to Sealwise WCB.

Sealwise WCB is non-organic and has been designed with a smooth surface so that it can be cleaned easily.

It is resistant to many chemicals, bacteria landing on it are inhibited from reproducing, reducing their ability to spread and importantly - both the surface and the core are 100% waterproof.

The core is made up using closed cell technology - that's millions of minute bubbles bound together to form the core. This means there's absolutely no room for water to get in, and certainly no room for bacteria. Used for both interior and exterior use, Sealwise WCB performs exceptionally well.

In addition to these vital qualities, Sealwise WCB is also made using a proportion of recycled materials, and would be suitable to recycle itself after its useful life span - we guarantee this is at least 20 years for a cabinet. Doesn't it start to make sense that many hospitals are using WCB for cabinets and fixtures, given these kinds of credentials?

WATERPROOF

WOOD REPLACEMENT

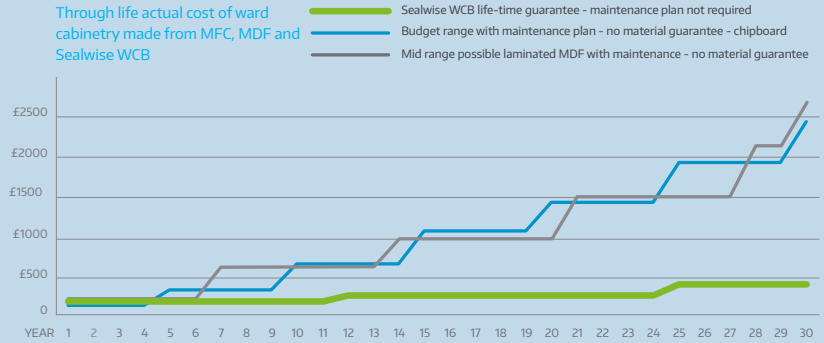
ANTI-BACTERIAL PROTECTION

RECYCLABLE

Longevity of Sealwise WCB

A modern manager has the advantage over his predecessors of looking at the through-life of equipment, and making a decision on purchasing not just on price point, but on the value of the product through its lifetime. And once you consider the lifetime of Sealwise WCB, and its durability, it soon becomes apparent that paying slightly more upfront for a superior material will help to save thousands in the long run.

The graph below shows how the old adage "Buy once, buy well" really pays off.



Anti-bacterial

We've gone further than any other manufacturer when it comes to infection control, introducing the latest technology into all of our material, at an affordable price.

We can reduce the risk of cross contamination associated with surfaces as Sealwise WCB has built-in anti-bacterial technology, ensuring it cannot be removed with any amount of wear and tear or cleaning.

We choose to use Biomaster technology in Sealwise WCB because it offers fast, effective and long-lasting anti-bacterial protection.

Our Biomaster-treated surfaces inhibit bacterial growth reducing odours and making them more hygienic and durable.

Bacteria

Bacteria, both good and bad, are a fact of life and are all around us. Most bacteria are rendered harmless by the protective effects of our immune system - some are even beneficial. But several species of pathogenic bacteria, such as MRSA, E.coli, Legionella, Listeria and Salmonella, can cause serious infectious diseases.

Independently tested in thousands of applications, Biomaster is proven to inhibit the growth of these harmful bacteria, and many others, which is why we insist on using it in Sealwise WCB.

When bacteria come into contact with our protected surface, the silver ion technology prevents them from growing, producing energy or replicating, therefore they die.

Biomaster is incredibly durable, long-lasting and highly active. When added to Sealwise WCB, it is dispersed throughout the entire board and becomes an integral part of the material.

Silver is inorganic and non-leaching which means that, unlike organic antimicrobial technologies, it stays within the item to which it is added. The controlled release of the active ingredient provides maximum anti-bacterial protection for the lifetime of our product.

Verimaster Anti Fraud Protection

We are the first company to have an anti fraud detector in such as contribution sheet material. This will last forever, meaning it can be proven at any time, by use of a laser, that the material is in fact Sealwise anti-bacterial WCB. This is revolutionary in the construction industry, offering architects the peace of mind that the correct material is being installed on their projects, ensuring customers receive the material they are paying for, not a substitute, and providing the public with a guarantee that they will, therefore, be protected by the qualities of Sealwise WCB.

ANTI-BACTERIAL PROTECTION

ACTIVE ANTI-BACTERIAL SILVER IONS

NON-TOXIC

CHEMICALLY RESISTANT

Biomaster PROTECTED

How effective is Sealwise WCB anti-bacterial?

Very. Sealwise WCB anti-bacterial is proven to inhibit the growth of bacteria by 99.99%.

Is Sealwise WCB anti-bacterial safe?

Yes. It is based on silver ion technology, recognised for centuries with no harmful effects. Sealwise WCB anti-bacterial is used in medical, food and water applications.

What's the difference between anti-microbial and anti-bacterial?

An anti-microbial inhibits the growth of, or destroys harmful micro-organisms such as bacteria, fungi and moulds. An anti-bacterial specifically prevents the growth of bacteria.

Has Sealwise WCB anti-bacterial been tested?

Yes, repeatedly. Sealwise WCB anti-bacterial is tested to ISO standards. We also undertake on going quality control tests and environmental trials.

How long is Sealwise WCB anti-bacterial effective for?

Sealwise WCB anti-bacterial is effective for the intended lifetime of the product it's added to. It is built into the product and doesn't wear off or leach out.

Does Sealwise WCB anti-bacterial affect a product in any way?

No. You can't see, smell or even taste Sealwise WCB anti-bacterial.

Is Sealwise WCB anti-bacterial effective against antibiotic-resistant bacteria?

Yes. Sealwise WCB anti-bacterial has been proven to be effective against antibiotic-resistant bacteria such as resistant Staphylococcus aureus (MRSA) and Vancomycin-resistant Enterococcus (VRE).

How do I know if a product is Sealwise WCB anti-bacterial protected?

All of our Sealwise WCB also comes with the latest security technology developed by Verimaster.

We've insisted in this addition to ensure peace of mind for all of our customers. You can rest assured that when you stipulate Sealwise WCB is used in a project, it is quick and simple to prove the legitimacy of every piece of our material due to this technology throughout the life-span of the product.

Where Sealwise WCB can be used

	3mm	6mm	10mm	16mm	18mm
Poultry / chicken farms	✔	✔	✔		
Hospitals - theatre wall lining	✔	✔	✔		
Cubicles				✔	✔
Veterinary		✔	✔	✔	✔
Medical cabinets		✔	✔	✔	✔
Laboratory cabinets		✔	✔	✔	✔
Dentists		✔	✔	✔	✔
Digital printing	✔	✔	✔		
Outdoor furniture			✔	✔	✔
Marine furniture		✔	✔	✔	✔
Dog kennels			✔	✔	✔
Piggeries	✔	✔	✔		
Dairy farms	✔	✔			
Caravans - wall lining	✔	✔	✔		
Wet rooms		✔	✔	✔	✔
Garden products	✔	✔	✔	✔	✔
Point of sale display	✔	✔	✔		
Horse boxes	✔	✔	✔		
Bath panels			✔		
Meat storage houses	✔	✔			
Milk parlours	✔	✔			
Breeding houses (eggs)	✔	✔			
Broiler houses	✔	✔			
Van-lining	✔	✔	✔		
Clean rooms	✔	✔	✔		
Food industry	✔	✔	✔	✔	✔
Sign makers	✔	✔	✔		

Features and benefits

FEATURES	BENEFITS
100% waterproof	No rot or water damage ever
Made from recycled material / 100% recyclable	Sustainable - environmentally friendly
Fire retardant	B1
Smooth hygienic surface	Disinfectant friendly, steam cleanable hard surface
Anti static properties	Remains dust free / stays clean longer / make machining on site easier
Rigid and durable	Provides excellent impact strength and high rigidity which promotes longevity within its different applications
Chemical resistant up to hydrochloric acid - 32%	Almost all industrial cleaners can be used with no affect to the white surface
UV stable + / -	Suitable for outdoor uses
0.70 Density	Excellent for fixing into, pull out rate on M8 screw from 19mm. WCB = approx 5000 newtons

Sheets and weights per pallet

DIMENSIONS	CONFIRMED BY PRODUCTION	HEIGHT OF PALLET IN MM (INCLUDING PALLET)	WEIGHT PER SHEET (KG)	TONNAGE PER WPALLET
3050 x 1500 x 3mm	100	425	10.294	1.029
3050 x 1500 x 6mm	40	365	20.588	0.833
3050 x 1500 x 10mm	35	475	30.653	1.072
3050 x 1500 x 12mm	30	485	36.783	1.103
3050 x 1500 x 15mm	20	425	50.096	1.001
3050 x 1500 x 16mm	20	445	53.436	1.068
3050 x 1500 x 18mm	15	395	60.116	0.901
3050 x 1500 x 19mm	15	410	63.445	0.951
2440 x 1220 x 3mm	110	455	6.698	0.736
2440 x 1220 x 6mm	45	395	13.396	0.602
2440 x 1220 x 10mm	40	525	19.945	0.797
2440 x 1220 x 12mm	35	545	23.933	0.837
2440 x 1220 x 16mm	25	525	34.769	0.869
2440 x 1220 x 18mm	20	485	39.115	0.782
2440 x 1220 x 19mm	15	410	41.288	0.619

Colour range

These are a selection of our colours, but we are able to produce the colour you want, given the appropriate RAL number.

There is an 8-10 week lead time for the colours listed, and a minimum order requirement of 10 tonnes. Other shades may require a longer lead time, and have a 20 tonnes minimum order requirement.

The grey core of Sealwise WCB can deviate between shades of grey depending on batch numbers, this is due to the recycled U-PVC within each sheet.

Standard white - colour variance of 3%.

	NOMINAL VALUE	TOLERANCE
L	92,00	+/- 1,0
a	- 1,47	+/- 1,0
b	2,58	+/- 1,5

Yellow RAL 1023

Cream RAL 9001

Blue RAL 5017

Green RAL 6029

Grey RAL 7042

Brown RAL 8025

Black

DIMENSIONS AVAILABLE
2440 x 1220 x 3mm
3050 x 1220 x 3mm
3050 x 1500 x 3mm
2440 x 1220 x 6mm
3050 x 1500 x 6mm
2440 x 1220 x 10mm
3050 x 1500 x 10mm
2440 x 1220 x 16mm
3050 x 1500 x 16mm
2440 x 1220 x 18mm
3050 x 1500 x 18mm

Material characteristics

	TEST STANDARD DIN	TEST METHOD	DIMENSION	SEALWISE WCB PVC-COPU/ST-AS
Density	DIN 53479		g/cm^3	0,70
Modules of elasticity	DIN 53457	Density	N/mm^2	1000
Impact strength	DIN 53453	Small standard test bare	mJ/mm^2	25
Ball indentation	DIN 53456	358/30	N/mm^2	16
Vicat distortion temperature	DIN 53460	B/50	°C	65
Average thermal co-efficient of elongation	DIN 53752		K'	0,83-IO-^{4}
Heat transition co-efficient		at 10mm	W/m^{2}K	3,4
Thermal conductivity	DIN 52612		W/m K	0,068
Specific heat Cp at 20°c		DSC Analysis Mettfer TA 3000	J/gK	0,78
Surface resistance	DIN 53482	Electrode A	Ohm	<10^{12***}
Volume resistivity	DIN 53482	Annular electr.	Ohm cm	10^{13}
Water absorption	DIN 53495	Method C	weight-%	<1,0
Short time welding factor				0,5 - 0.7
Combustion behaviour	DIN 4102	at 10mm		B1***
	DIN 53438	part 3 surface flamed		F1
	DIN 53438	part 2 edae flamed		K1
Oxygen index	ASTM D 2863		%	>35
Physiological admissibility	BGA			not given
Airborne sound insulation			dB	25/8mm thickness 32/15mm thickness 36/25mm thickness

The density and some of its properties may vary slightly from the specified values because of fluctuations caused by the process and geometric ratios (thickness of the outer skin pore size in the case of foam).

** The heat transition coefficient is a calculated size. The calculation bases on the following condition:

a, = a2 = 11 W/m'K

*** Dependant on the atmospheric humidity

**** Available on request

The data specified here are guide values and may vary depending on the construction structure of the Sealwise WCB sheets, fluctuations due to the process as well as the production of the test piece and measuring methods. They are average values of measurements on sheets with a thickness of 10 mm. The indications cannot simply be transferred to finished parts. The manufacturer or user has to check the suitability for a specific application. The additions of colour, anti-bacterial compounds and any alterations to the standard white sheets may also alter the above information.

Safety data

	Test standard DIN
1. Indications to the manufacturer	Contact SEALWISE WCB LTD - Telephone 01934 750084
2. Composition / indications to components	Chimerical characteristics: polymer of vinyl chloride, foamed CAS-number: not necessary
3. Possible dangers	Unknown
4. First-aid measures	General comment - medical aid is not necessary
5. Fire-fighting measures	In case of fire please use gas mask and breathing equipment depending of circulating air. Fire residues must be disposed of according to the local instructions. Suitable fire-fighting appliance: water fog, foam, fire-fighting powder, carbon dioxide
6. Measure in case of unintended release	Not applicable
7. Handling and storage	Handling - no special regulations must be observed Storage - unlimited good storage property
8. Limitation of exposition	Personal protective equipment: not necessary
9. Physical and chemical characteristics	**Phenotype** Form - semi-finished product Colour - different Smell - not distinguishable **Change of state** Crystallite melting point - 80 °C Fire point - FIT 390 (values indicated) Inflammation temperature - SIT 455 in literature) Density - 0.55 - 0.72 g/cm
10. Stability and reactivity	Thermal decomposition; above appr. 200 °C Dangerous decomposition products: Besides hydrochloric acid also carbon dioxide and water will develop during the burning process. In case of incomplete burning also carbon monoxide and traces of phosgene may arise.
11. Toxic indications	During several years of usage, no effects being harmful for the health were observed.
12. Ecological indications	No biodegradation, no solubility in water, no effects being harmful to the environment must be expected.
13. Waste-disposal Indications	Can be recycled or can be disposed of together with household rubbish (acc. to local regulations). Waste key for the unused product - EAK-Code 120 105 Waste name - waste of polyvinyl-chloride
14. Transport indications	No dangerous product in respect to / according to transport regulations
15. Instructions	Marking according to GefStoffV/EG: no obligation for marking Water danger class: class 0 (self-classification)
16. Further indications	The indications are based on our today's knowledge. They are meant to describe our products in respect to safety requirements. They do not represent any guarantee of the described product in the sense of the legal guarantee regulations.

Working with Sealwise WCB

Sealwise WCB can be used with most standard carpentry machinery or hand tools. Wear and tear on blades etc is actually reduced by using Sealwise WCB compared to materials like MDF.

We recommend you test your equipment when using it with Sealwise WCB to establish the optimum cutting speeds. Normally, we recommend slowing down CNC or saws slightly, to improve the results.

The thing to try and avoid when working with our material is allowing your machinery to get too hot, as this may cause clogging.

- **Beam saw** - Because of its closed cell core Sealwise WCB cuts exceptionally well. Due to the tolerances of the boards, we recommend measuring the length and width of the panels prior to cutting, to guarantee an accurate cut.
- **CNC** - When cnc-ing Sealwise WCB, we recommend using general purpose wood/plastic cutter. To clear away swarf when machining, a single fluted up cit router bit is advised. An example of cutter speeds based on our calculations are: for a 6mm upcut router bit we'd recommend 18,000 RPM and feed speed of 4m/ per minute. This is only a guideline though, and we recommend testing your own tooling when initially working with Sealwise.
- **Edging** - edging can be applied to Sealwise WCB with relative ease. Techniques are very similar to that of MFC/MDF. When using a hot melt edge bander, we recommend using Ahm020 White/clear hot meld glue from NEY. We always advise checking the tolerance of the panels prior to commencing edging. Once the tolerance has been checked, make a note of the batch number or VK code if possible. This is to prevent the edge bander from cutting into the board when trimming the edging. Customers also use laser edge banders and PU edge banders. However we recommend you test Sealwise WCB using your machinery before commencing works.
- **Hand-held electrical tools** - such as chop saws, rip saws, routers, jigsaws, planes – treat as you would when cutting or working with wood.
- **Hand-held tools** - As above, follow all normal procedures. You can use all hand-tools when working with Sealwise WCB.
- **Screws** - All screws work well with Sealwise WCB, even self-tapers and bolts, because unlike wood, where you need to tap a thread in first, Sealwise WCB can take the threaded bolt itself. The screw retention is excellent, and far out-performs MDF and MFC - see later reports.
- **Laminating** – All laminated sheets of Sealwise WCB need to be supported using a backing laminate. Because of its smooth surface we recommend using either PU or neoprene adhesives when laminating onto Sealwise WCB. After extensive testing we recommend Abet laminates as the ideal laminates for use with Sealwise WCB.
- **Contact adhesives** - Sealwise WCB works in conjunction with almost all neoprene contact adhesives. However we recommend getting in contact with either Forgeway or Tensorgrip for more technical information about using contact adhesives and Sealwise WCB.
- **Painting** - Most paints work on Sealwise WCB. Although the surface is very smooth, the holding capability of the paint to the surface is very good. We'd recommend an agitator is used first on the surface, before applying paint, then undercoat, and finally, the paint. For strength and durability, something like PU or AC spray paint is ideal. We've had clients use emulsion straight on to Sealwise WCB, and it has worked well, but this method would not be our recommended one.
- **Nailing and staples** - using small nails and staples works very well on Sealwise WCB but care should be given when using larger nails, which require more force to hit in, which can lead to cracking.
- **Jointing** - Sealwise WCB W14 is recommended to give an excellent strong and water tight joint to any but our V groove joints. Other adhesives may work well too, but W14 is the only recognised solvent by Sealwise WCB 2014 Ltd. Most glues have been tested with positive results, but W14 was developed for the purpose, and with the aim of leaving virtually no residue behind. Other adhesives, solvents etc may be introduced by Sealwise WCB 2014 Ltd from time to time.
- **Storing** - It's recommended that Sealwise WCB is stored in a cool, dry place, and stacked evenly on top of each other using evenly spaced bearers. The top coat has a strong covering on it, but care must be taken not to scratch the material whilst it's being handled. Scratches can be sanded out and re-polished should light cosmetic damage occur.
- **Vinyls** - Decorative and lettering graphics can easily be applied to Sealwise WCB - it is an ideal substrate due to its excellent rigidity and stability. All standard techniques of applying vinyls can be used when working with our material.
- **Printing** - The exceptionally smooth surface quality of Sealwise WCB makes it ideal for screen and digital printing. Being able to keep the protective film on each sheet until you are ready to print means the panels are better protected from dust, dirt and undesirable residues which may otherwise have affected the finished print quality. When peeling off the protective film we recommend doing so in one continuous movement to ensure the optimum surface quality.

Static

Virtually all materials carry a static charge - the amount depends on a number of things. Sealwise WCB is a PVC-based material, which in its own right produces static.

The anti-static additive within Sealwise WCB material does not dissolve or influence the static created by the sheets themselves. Instead, it acts as an extra function to allow the electrostatic loads that are being created by the sheet to be discharged easier, via other forms such as electrostatic brushes or ionisation equipment.

The anti-static additive that is in the sheet is there to protect the sheet itself from dust particles etc. not anyone around it. It is not there to reduce the static loads for people processing the material.

The level of static is therefore also influenced by the working conditions and the humidity within the environment, which we would suggest be circa 50% - 70% RF.

We believe that with appropriate handling equipment, gloves and discharging apparatus, the materials should be fine and in line with any other PVC materials that are handled in the same manner.

Static is not a subject where definite answers and guidelines can be given, simply because of the variances within environments, individuals, weather, and so on. If you are having problems with static then please call us to discuss it.

UV Warranty

A unique feature of Sealwise WCB is that it carries a 10-year warranty (see certificates and warranties) for maintaining its colour composition for external use. This was tested in European conditions on white 9003 RAL colour*.

The warranty refers to the colour not fading, the actual material itself will last much longer than 10 years if treated correctly. Sealwise WCB is 100% waterproof, including all of the edges, so they do not need extra covering or protection. However, for aesthetic reasons, either an ABS or PVC edging is normally recommended as the grey core can vary slightly in colour from batch to batch. This is simply due to the differing recycled content, which can cause a variance in colour.

For external use, or use in extremes of temperatures, we always recommend expansion gaps and elongated holes for fixing to allow for movement within the sheet. (see later tolerances section)

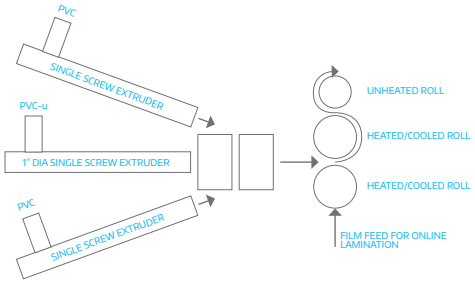
*The colour of the sheet will impact on the way in which the Sealwise WCB performs towards UV.
Darker colours absorb more UV and heat, and this had
adverse reactions to the quality of the colours.

Tolerances

Sealwise WCB is an extremely technical product to make. It is a co-extruded material, which means there is more than one line of molten PVC being put together at one time to form a multi-layered sheet. It is so technical there is only a small number of companies in the world who can do it to the level of quality demanded. Sealwise WCB is produced with the highest specifications possible, and we have guidelines or tolerances which we endeavour to keep to.

We always aim for a very smooth, blemish-free surface finish. This alone is a great test of the production process - but adhering to our tolerances makes it so much greater.

Sealwise WCB when first produced is a hot wet mixture which is free-flowing. This has to be closely controlled to ensure it will set correctly and form a perfect Sealwise WCB sheet. It isn't like wooden products, which are glued and pressed together - Sealwise WCB begins its life as a moving object. It is important to understand this to fully appreciate the complexity of the product. The diagram below gives a simplistic idea of co-extrusion.



3050mm x 1500mm	
On lengths up to 3050mm	0 + 6
On widths up to 1500mm	-0 and +5mm
2400mm x 1220mm	
On lengths up to 2440mm	0 + 6
On widths up to 1220mm	-0 and +4mm

Unlike most PVC sheeting, Sealwise WCB is made to very tight tolerances to allow it to be used within sectors such as construction and cabinet-making. Whilst we take every precaution to ensure our tolerances are maintained, from time to time, there may be a slight variance. If you find sheets that are not within 10% of the tolerances we stipulate, then please contact us immediately to assess the situation. We will require sheet sizes, batch numbers, date of order and as much detail as possible, including a photo if possible. Only uncut sheets will be considered for replacement.

On thickness, there is a tolerance of + or - 0.8mm from 3mm to 18mm sheets then 1.2mm from 19mm to 25mm sheets, across the sheet

We would always suggest trimming the sheet before use in case it is slightly out, from being cut in the co-extrusion process. This is a rare occurrence, but can arise occasionally as a result of the manufacturing process.

Longitudinal curvature / bowing = maximum deviation is 2mm per 1000mm in length measured lying flat.

The tolerances listed are as Sealwise is manufactured to at source in Europe. Whilst great care is taken to ensure nothing leaves the factory which is not within stated tolerances, the sheets can increase or decrease in size slightly in different environments. We take every precaution to maintain the tolerances that we state in the guide and cannot be held responsible for unforeseen external influence. For more information please call our technical advisor on 01934 750084.

Thermal expansion

Sealwise WCB is suitable for outdoor applications and comes with a 10 year UV guarantee for external uses in the UK. Please note, Sealwise WCB is a thermoplastic and needs to be installed to allow for expansion and contraction when subject to changes in temperature.

Mean coefficient of linear thermal expansion	k-1, ISO 11359 -2 0,8 X 10 - 4 This equates to 0.8mm at 10 degree temperature differentials for each 1 metre length.

EXAMPLE

Installation temperature 20 degrees **Application temperature 30 degrees** **Length- 4.5m**	Based on the above calculations this equates to a 3.6mm increase.

Protective foil

The foil is designed to protect one face of the Sealwise WCB sheets. The coverage of the protective film will be no more than 10mm in from the sides and no more than 5mm over hang. It is easily peeled away when the sheet is ready for use.

Delivery and Storage

When you order Sealwise WCB, it is delivered on good quality, sturdy pallets, which are usually four way pallets which have been treated.

If you are ordering less than a pallet, sheets will be delivered protected.

WCB sheets are manufactured with a strong blue foil covering on one side which protects this face during fabrication or printing. The foil is easily removed once you are ready to use the material. Unloading should be done using a forklift or other unloading machinery. If this is not available, then sheets should be carried upright using suitable PPE equipment, with a minimum of two people per sheet. Care must be taken when removing sheets not to drag or scratch them. Clean lifts will also reduce the potential of static within the panels.

Stack pallets in a cool area ideally under cover. Pallets should be stacked no more than five high at any time. Storage should be in a clean, dry and well-ventilated environment.

Sealwise WCB for the health industry

Making a difference in the health sector has been our goal from the beginning.

Our innovative material offers outstanding infection control, cost-effective solutions and environmental innovation.

We developed Sealwise WCB specifically for the health sector, where cleanliness is key. It's ideal for any sterile environments. It has a myriad of uses within the health sector from cabinets to auto clave system housing and reception areas to wall cladding in operating theatres due to its excellent infection control and cost effectiveness.

Hospitals

Sealwise WCB has major benefits for hospitals and appeals to health professionals because it is safe, durable and long lasting. Its peerless hygiene standards make it the material of choice for many hospital applications. It provides excellent infection control - an area in which the NHS spends in excess of £1 billion annually.

So-called superbugs cannot survive on its uniquely-designed anti-bacterial surface, and our patented jointing system means there's simply nowhere to hide.

GP Surgeries

The work of a GP necessitates the need for a clean, sterile environment, exposed as it is on a regular basis to such a wide-range of germs. Sealwise WCB with its anti-bacterial, easy-to-clean surfaces, is the perfect choice for surgeries and waiting rooms alike.

The increasing demands and pressures on GP surgeries to reduce hospital admissions, and an expectation to offer minor operations also enhances this need for greater hygiene. Sealwise WCB sheet material is a perfect solution for hygienic, modern practice fixtures, fittings and furniture.

Our material is easy to work with and adaptable, making it ideal for bespoke settings, tailoring furniture and fittings to the exact needs of your practice.

It offers further peace of mind and confidence that not only is infection control flawless but that our solutions are cost-effective with major environmental advantages.

Advantages of using Sealwise WCB

- ANTI-BACTERIAL PROTECTION
- ACTIVE ANTI-BACTERIAL SILVER ICONS
- FIRE RESISTANT
- TOUGH AND HARD WEARING
- THERMALLY STABLE
- SOUND ABSORBENT
- EASY TO MANUFACTURE AND INSTALL
- NON-TOXIC
- ANTI-STATIC
- WITHSTAND MOST DENTAL CLEANING TECHNIQUES
- PATENTED JOINT SYSTEM
- CHEMICALLY RESISTANT

Dental Surgeries

A dental surgery is another environment where cleanliness is paramount, and where adaptability is crucial. We will work with you to design the practice which best suits your needs, in a material which best suits your work.

With the standards of the Care Quality Commission becoming ever more stringent, You can rest assured that specifying Sealwise WCB for your practice design will meet all infection control requirements, and that it will reduce future maintenance costs and downtime, whilst ultimately providing a hygienic, modern and stylish workspace.

Sealwise WCB is very durable, and designed to withstand the most rigorous cleaning techniques, making it the perfect option for surgical and medical environments. It has already been installed in a number of Harley Street dental practices.

A recent UCL report (see page 21) highlights the effectiveness of the material in combating the threat of bacteria.

Other innovative WCB applications

Agriculture

The adaptability of Sealwise WCB suits the agricultural industry particularly well, and farmers are already recognising the many areas in which it can be used.

Poultry farmers have recognised its benefits for wall cladding in poultry sheds to help reduce red mite infestation, whilst for piggery farmers, its durability and the ease of which it can be cleaned makes Sealwise WCB a perfect choice for pig-pen construction.

It is also an excellent material for use around equestrian pursuits, from cladding horse boxes and stables, to building jumps.

Whatever its use, in an industry where product longevity and hygiene is key, farmers appreciate that Sealwise WCB is a long-lasting, cost effective material, suitable for both for interior and exterior use.

Laboratories

Today's laboratories are busy environments, encountering heavy use and extreme wear and tear due to the nature of the processes performed in them. Sealwise WCB's durability, together with its innovative anti-bacterial surfacing makes it the perfect choice.

It's a material which is safe and practical, yet adaptable enough to create the sleek modern design of a 21st century workspace.

Sealwise WCB is easy to install and has been designed to be tough and hardwearing, but most importantly chemically resistant and hygienically easy to clean to reduce contamination or cross contamination. It can withstand the most rigorous cleaning techniques, making it the perfect option for a laboratory environment.

Its robustness has also been backed up in a UCL report highlighting the effectiveness of the material in combating the threat of bacteria.

Signage

Sealwise WCB is extremely hard-wearing, waterproof and light-weight, making it an excellent material for interior and exterior signs, hoardings, fixtures and fittings.

Because Sealwise WCB is so durable and long-lasting, it brings clear advantages to this sector. It's also very easy to use and has great anti-static qualities. It performs brilliantly in wet environments, making it ideal for outdoors and an easy-peel protective film on one surface ensures an unblemished finish. Crucially for outdoor use, Sealwise WCB is 100% waterproof and has a 10-year UV tolerance guarantee as well as the easy-peel protective film. Its outstanding quality finish is great for use with CNC routers. It can be thermoformed, fabricated and CNC routed as well as being engraved.

Sealwise WCB can be used to print with standard inks and cut with standard machines. Our branded solvent adhesive complements Sealwise WCB perfectly but standard industry adhesives can also be used effectively.

Flood Protection

In recent years, we've seen a rise in the number of homes and businesses affected by floods, and seen the devastation which can be caused by prolonged exposure of your home or premises to water. When the flood water subsides, families and businesses are left to deal with the devastation left behind.

Sealwise WCB is proving increasingly popular in kitchen designs, replacing those manufactured from wood, MDF or chipboard as it is wholly waterproof and resistant to bacteria and germs. Consequently, after a flood, because of its anti-bacterial properties, Sealwise WCB can be effectively and hygienically cleaned so it doesn't need to be thrown away. A kitchen made up of units constructed with Sealwise WCB can be chemically cleaned, then reinstalled and the customer can be confident that no bacteria or germs carried by the water remain. The units are 100% waterproof and will not swell and break like wood and MDF.

Construction

Sheet material is widely-used within the construction industry but there has always been problems with using materials which are both waterproof and eco friendly. It is ideal for many applications such as wall covering, shuttering, site hoarding, signage on site, flooring, roofing and many other uses in general construction.

Sealwise WCB is designed to be a long-term solution - tough, 100% waterproof and simple to work with. It also comes in various colours and textures, and can be printed on. We envisage every trade will have a use for Sealwise WCB.

Residential and Educational Establishments

Sealwise WCB provides a robust, practical and comfortable solution, ideal for a range of institutions, from schools to care homes.

Features such as an attractive functional appearance and high impact resistance make it suitable for furniture in high traffic areas, such as school common rooms, boarding school dorms and care home lounges.

Sealwise WCB copes with all the wear and tear with almost no maintenance. It's great value for money, promising a long service life, with a service life in unblemished conditions typically of up to 15 years, with minimal maintenance. Its anti-bacterial properties and durability is also ideal for kitchen surfaces and units.

Sealwise WCB Certificates

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Management Service

CERTIFICATE

The Certification Body
of TÜV SÜD Management Service GmbH
certifies that

SIMONA AG

Teichweg 16
D-55606 Kirn

including the
sites and scope of application
see enclosure

has established and applies
a Quality Management System.

An audit was performed, Report No. **70017955**

Proof has been furnished that the requirements
according to

ISO 9001:2008

are fulfilled. The certificate is valid until **2014-12-21**

Certificate Registration No. **12 100 3169 TMS**

Munich, 2012-01-18

QMS-TGA-ZM-07-92

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TÜV SÜD Management Service GmbH • Zertifizierungsstelle • Ridlerstraße 65 • 80339 München • Germany

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Management Service

Enclosure of Certificate No.:

12 100 3169 TMS

Sites	Scope of application
SIMONA AG (Zentrale) Teichweg 16 D-55606 Kirn	Development, production and sale of semi-finished thermoplastics: Sheets, profiles, pipes, fittings, welding rods and finished parts
SIMONA AG (Werk I und II) Teichweg 16 D-55606 Kirn	Production of semi-finished thermoplastics: Sheets, profiles, welding rods and finished parts
SIMONA AG (Werk III) Gewerbestraße 1-2 D-77975 Ringsheim	Production of semi-finished thermoplastics: Pipes, fittings
SIMONA Plast-Technik U Autodílen 23 CZ-46303 Litvínov-Chuderin	Production of semi-finished thermoplastics: Sheets, pipes, fittings
SIMONA Engineering Plastics (Guangdong) Co. Ltd. 368 Jinou Road, High & New Tech Zone PRC-529000 Jiangmen City	Production of semi-finished thermoplastics: Sheets

Munich, 2012-01-18

QMS-TGA-ZM-07-92

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IMSL INDUSTRIAL MICROBIOLOGICAL SERVICES LTD

CERTIFICATE OF ANALYSIS Page 1 of 1

CUSTOMER

AddMaster Ltd
Darfin House
Priestly Court
Staffordshire Technology Park
Stafford
ST18 0AR
UK.

CERTIFICATE NO. 1015700.07/5919
CUSTOMER REF. 349

SAMPLE DETAILS
WOODWISE

DATE RECEIVED 21/03/2011
ORDER NO.

METHOD: Determination of Antibacterial Activity using Test Based on MOD JIS Z 2801:2000

DATE ANALYSED 23/03/2011 **DATE REPORTED** 25/03/2011

RESULTS (AS CFU CM^{-2})

SAMPLE	SPECIES	CONTACT TIME 0 hrs	CONTACT TIME 24 hrs	REDUCTION (CONTROL) Log 10	REDUCTION (CONTROL) %
SEALWISE SHEET WITH BIOMASTER	*E coli*	1.7E+04	7.9E+03	1.6	97.61%
POLYSTYRENE	*E coli*	1.7E+04	3.3E+05		
SEALWISE SHEET WITH BIOMASTER	MRSA	1.6E+04	9.9E+01	1.6	97.42%
POLYSTYRENE	MRSA	1.6E+04	3.8E+03		

Key: NS = Poor survival on control supplied.

The above data shows the difference in the population following contact with the surface of the samples listed for 24 hours at 35°C under a RH of > 95% relative to the control sample.

IMSL MICROBIOLOGICAL SERVICES LTD
PALE LANE
HARTLEY WINTNEY
HANTS RG27 8DH
UK

MANAGING DIRECTOR
Peter D Askew

SEALWISE

10 YEAR EXTERNAL USE WARRANTY

For a period of 10 years as from delivery by Sealwise or a legal affiliated company, we give the following warranty for Sealwise WCB sheets, in accordance with our present weathering results for outdoor use in the United Kingdom.

The product is guaranteed for 10 years from the original date of purchase. All product features are guaranteed to perform to the same standard for this period of time.

For a full list of product features, see technical guide, (2014)

This warranty is conditional upon the following conditions:

- It applies to the original sheet as at initial purchase.
- Compliance with our product information - For more information seek the technical guide which can be found at www.sealwise.co.uk

To obtain service under the warranty, report any problems to Sealwise with proof of purchase. This should be done within four weeks of discovery of any issues
(photographic evidence and the return of damaged sheets may be requested)

In the event of a justified warranty claim, Sealwise will, at it's option, replace the materials free of charge or credit the customer with the value of the sheets delivered. This warranty explicitly does not cover any other claims. Sealwise's liability resulting from this warranty shall always be limited to the value of the delivered sheets at the time of the sale.

Sealwise(2014) Ltd

Sealwise WCB Tests

Impact testing

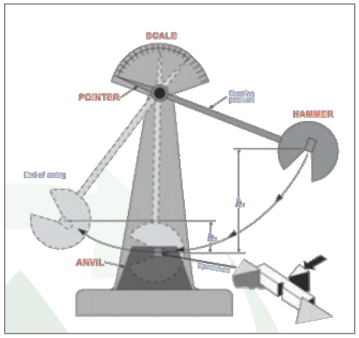
Test method

A pendulum impact tester can be used to evaluate the impact strength and total absorbed energy of different materials. The image below depicts how the tests are carried out.

Sealwise WCB, MDF and MFC were the sample materials in question to depict the best material of the three for impact resistance.

Test result

Sealwise WCB exhibited the highest impact resistance of the three materials tested by 90% to it's closest competitor MDF. It also carries a lower standard deviation across the test pieces provided.



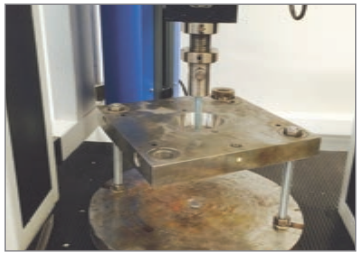
Screw pull-out test

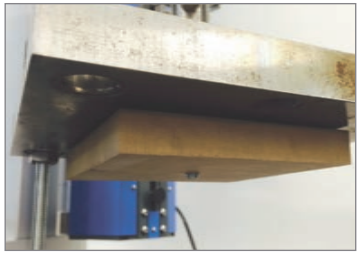
Test method

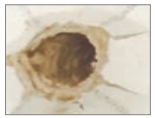
A specific jig was designed for the screw pull-out test. The photos show below the jig used. The pull-out test was performed at a speed of 20mm/min, the maximum force required to pull out an M8 screw was recorded.

Test result

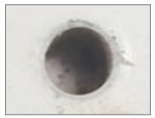
Sealwise WCB outperformed the other two materials in the screw pull out test. Overall Sealwise required 2.5% the amount of force to pull the bolt out compared to MDF/MFC.



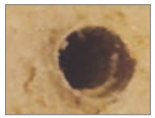




Chipboard



Sealwise WCB



MDF

All tests were carried out by Exeter University. Full reports are available for download at: www.sealwise.co.uk

Surface testing

Test method

The test was conducted by applying 5 drops of each re-agent on the surface covered with a water glass. All chemicals were tested at room temperature for a period of 24 hours and rinsed off with water and evaluated.

Test result

As the results table indicates, the Sealwise WCB surface showed no detectable damage after being in contact with these treatments and chemicals for a 24 hour period.

TREATMENT	OBSERVATION
4% parafomaldehyde - overnight	No detectable damage
Concentrated hydrochloric acid - overnight	No detectable damage
Glacial acetic acid - overnight	No detectable damage
Nitric acid - overnight	No detectable damage
Sulphuric acid - overnight	No detectable damage
Dichloroethane - overnight	No detectable damage
Ethanol - overnight	No detectable damage
Universal indicator	No detectable damage
Potassium permanganate	No detectable damage

Thermoforming information

Test method

A furnace with accurate temperature control was used for thermal forming trials. The furnace was set at a temperature of 125 ^{O}C. 6mm Sealwise WCB board was placed in the furnace and heated for 10 minutes. The 16mm Sealwise WCB board was also placed in the furnace with a 5kg weight on top of the material.

Test result

The recommended thermal forming temperature for Sealwise WCB would be 120-130 ^{O}C for thin board (5mm - 10mm) and 140-150 ^{O}C for thick board (>10mm).

Heavy metal impurities test

Test method

3 samples of PVC sheets were submitted for analysis to determine if the composition was indeed PVC and to determine any metal impurities in the samples, specifically lead, cadmium and Thallium. Small pieces of each plastic material were removed using a sharp knife and the weight recorded using an accurate balance. Each piece was then further cut into roughly 1x1mm pieces and soaked in 8ml of high purity nitric acid. These samples were then digested using a microwave digester.

Test result

Of the three test samples, Sealwise was the only sample where no negligible amounts of Pb(Lead) were found within the samples as opposed to the other two imported plastics where significantly higher amounts were found.