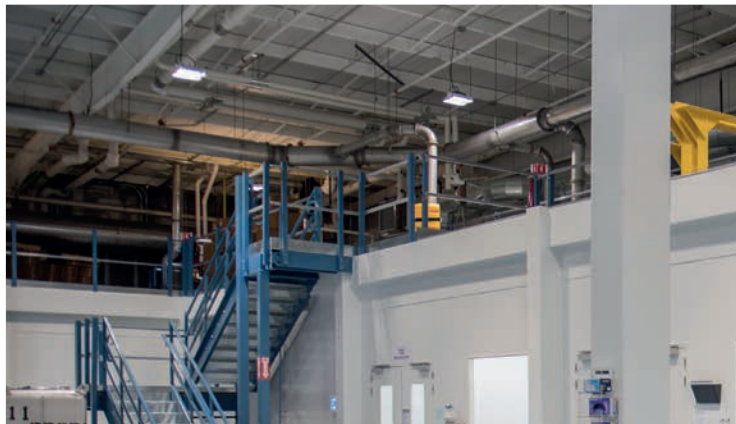




Kingspan CLEANsafe

Technical Features



CLEANsafe

Controlled environments take many different forms. Their performance and functionality depend on their specific project requirements and can be affected by the conditions the materials' systems are subjected to.

Kingspan CLEANsafe

The corrosive factors of an internal environment are determined by the presence of corrosive chemicals and / or microorganisms in the internal atmosphere and relative humidity, as well as by the frequency of cleaning, aggressiveness of the cleaners, degreasers, sanitizers, and method of cleaning.

Kingspan CLEANsafe coatings, each designed specifically for temperature controlled environments, have particular properties suited to different environments. We offer and aid in choosing the right coatings to meet the appropriate classification of corrosive environment and type of activities.



	Corrosiveness	Inspection Frequency	Type of Application	Kingspan CLEANsafe MP	Kingspan CLEANsafe PVDF	Kingspan CLEANsafe120	Kingspan CLEANsafe Stainless Steel
C1	Very Low	Annually	Dry packaged cold storage, docks, locker rooms, toilets, offices, shops.	Yes	Yes	Yes	Yes
C2	Low	Annually	Storage, sorting and packing of fruit and vegetables, storage of packaged meat and dairy products.	–	Yes	Yes	Yes
C3	Medium	Every 6 months	Food production and preparation areas, dry process, ice cream production, butter production, breweries, dairies, wine cellars, processing of precooked foods, baking facilities	–	Yes	Yes	Yes
C4	High	Every 3 months	Wet process industrial kitchens and cooking, storage of unpacked fish, cheese, meat cutting, scalding and evisceration	–	–	Yes	Yes
C5	Very High	Every 3 months	Primary live rooms, rendering, picking, cooking, preparation of marine products	–	–	–	Yes

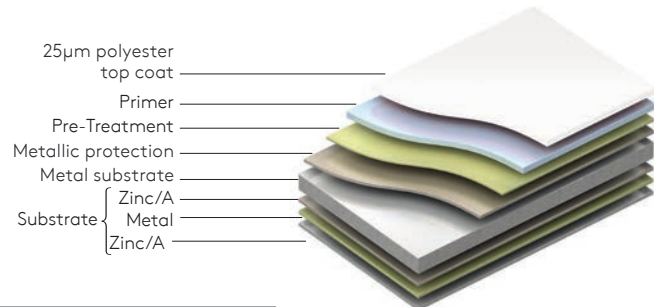
*Buildings may contain areas where different conditions apply and must be considered separately if they have different corrosive environments. This table is provided for general guidance only. For more information about the effects of various chemicals on the coatings please contact your Kingspan Sales Rep or Kingspan Technical Services.

CLEANsafe

CLEANsafe

Modified Polyester

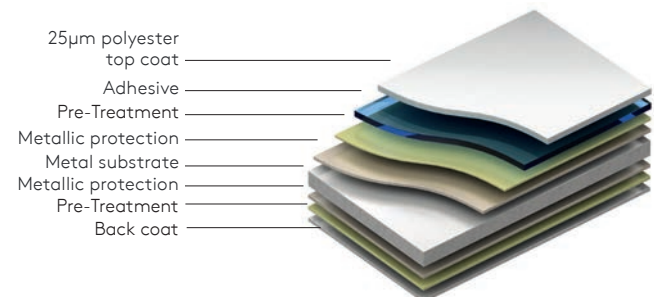
CLEANsafe is a chemically inert polyester paint applied to pre-treated metal specifically developed for controlled environments.



CLEANsafe

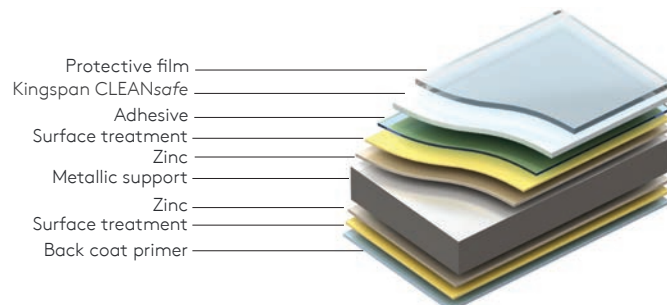
PVDF

CLEANsafe is a chemically inert polyester (PE) coating, applied to pre-treated metal, suitable for moderately aggressive internal environments.



CLEANsafe 120

CLEANsafe 120 is a chemically inert polyvinyl chloride (PVC) film, laminated to pre-treated metal, suitable for internal for controlled environments.



CLEANsafe 304

Stainless Steel

CLEANsafe Stainless steel 304 is a chemically inert, gap-free austenitic stainless steel, specifically designed for conditioned environments and environments with a high corrosion factor.



Kingspan CLEANsafe 120 PVC Anti-Bacterial Coating

1. Composition

1.1 Standard metal support

- Continuously hot-dip zinc coated low carbon for cold forming, type DX51D (UNI EN 10346:June 2009).

Other available metal supports

- Stainless steel – Part 1. List of the stainless steels (UNI EN 10088-1/97).

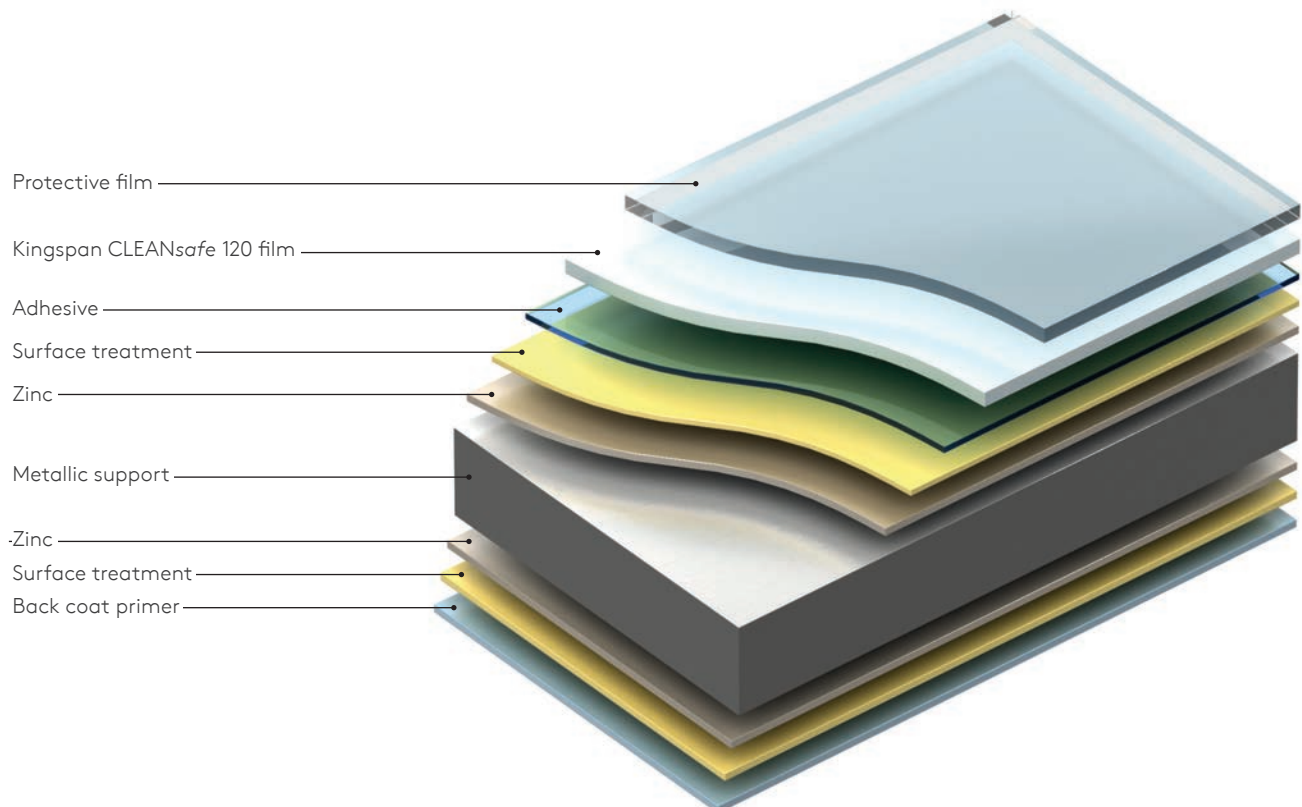
1.2 Adhesive

1.3 Coating

- Anti-bacterial rigid polyvinylchloride (PVC) Phthalates free.

This film is suitable for contact with food and substances for personal use according to the Ministerial Decree 21st March 1973 and subsequent updatings and to the European Standards 78/142/CEE, 80/766/CEE, 82/711/CEE, 85/572/CEE, 90/128/CEE, 92/39CEE. This film is suitable for contact with food and substances for personal use according to the Ministerial Decree 21st March 1973 and subsequent updatings and to the European Standards 78/142/CEE, 80/766/CEE, 82/711/CEE, 85/572/CEE, 90/128/CEE, 92/39CEE.

Product composition



Kingspan CLEANsafe 120 PVC Anti-Bacterial Coating

2. Technical Features

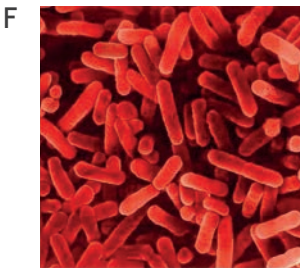
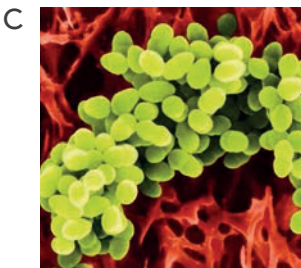
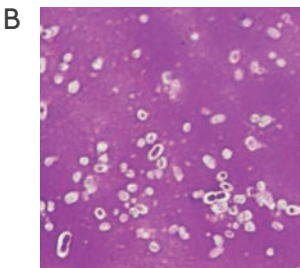
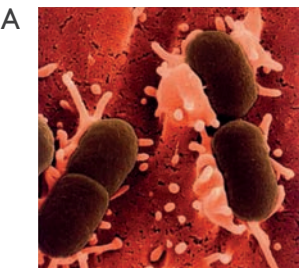
Test	Norm	Result
2.1 Coating nominal thickness	- PVC rigid film - Thickness tolerance	100 m - 200 m ± 7%
2.2 Adhesion after 6mm drawing depth	ECCA T6	No film detachment
2.3 Resistance to bending	ECCA T7 [1996]	½ T
2.4 Resistance to rapid deformation	ASTM D 2794-93 (weight 2 Kg; height of fall 90 cm)	No detachment and breaking of film
2.5 Resistance to salt spray fog	ECCA T8:1996 - ASTM B 117-95 - Cold-rolled support - Hot-dip zinc support	200 hours 500 hours
2.6 Resistance to 100% relative humidity	ASTM D 2247-94	1000 hours
2.7 Pencil hardness	ECCA T4:1995 - ASTM D 3363-92a	HB
2.8 Stain resistance after 16 h - Reagents	ECCA T18 [1995] proc. 5.1 - ASTM D 1308-87 Butter, margarine, vegetable oil, vinegar, fresh and conserved tomato, strawberries, coffee, tea, solution at 5% of NaOH, solution at 5% of surface active agents, lubricating oil and grease, solution at 10% of citric, lactic and tartaric acid, oleic acid, spinach, lemon juice, mustard, Cif cream, Cif liquid, Lysoform liquid.	Presence of marks or stains on the area in contact with fresh tomato and coffee
2.9 Brightness at 60°	ECCA T2 [1995] - ASTM D 523-89 Finishing SA Finishing SMA Finishing GMA Finishing PVA	45 ± 5 25 ± 5 15 ± 5 30 ± 5
<i>Note: gloss value may be affected by embossing degree</i>		
2.10 Artificial light fastness - Temperature - Lamps - Cycle - Reference	ASTM G53-96 55 ± 3 UV - A 340 Irradiance only International Blue Scale	> 6
2.11 Taber abrasion resistance - Index of abrasion after 1000 cycles with mole type CS10, weight 500 g per mole	ASTM D4060-95 Finishing SA Finishing SMA Finishing PVA	13 - 14 10 - 12 5 - 8

Note: the tests were carried out at the temperature of 23±1 °C, beyond what was expressly required by the reference norms.

Kingspan CLEANsafe 120 PVC Anti-Bacterial Coating

3. Anti-Bacterial Activity

3.1	Norms - Bacterial strains	ISO 22196:2007 - ASTM E 2180-07 - JIS Z 2801			Kingspan CLEANsafe 120 satisfy all the norm requirements, showing a great anti-bacterial action
		- Escherichia Coli	(A)	ATCC8739	
		- Klebisella pneumonie	(B)	ATCC10031	
		- Staphylococcus aureus	(C)	ATCC15442	
		- Typhimurium	(D)	ATCC6538	
		- Listeria monocytogenes	(E)	ATCC13311	
		- Legionella pneumophila	(F)	ATCC19117	
		- Pseudomonas aeruginosa	(G)	ATCC43108	



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Kingspan CLEANsafe 120 PVC Anti-Bacterial Coating

4. Maintenance of Coated Steel

4.1	Cleaning	- We recommend cleaning with soft water and neutral detergents, rinsing with care and drying the surface with a soft cloth. - Avoid the use of abrasive products.
4.2	Small Stains Removal	- Small stains on the surface can be removed with mineral spirit or denaturated alcohol. - Stains caused by the substances absorption (such as nail varnish, lipstick, shoe polish, ink, tar) cannot be eliminated.

Note: it is preferred to avoid solvents such as acetone, toluene, ethylacetate, trichloroethylene, perchloroethylene. These substances have an aggressive action on the PVC film.

5. Repairing or Painting of Kingspan CLEANsafe 120 Coated Steel

5.1	Preliminary Operations	- Before applying the enamel, clean the surfaces with neutral detergents diluted with water or denaturated alcohol, then rinse with soft water and dry accurately.
	Usable Materials	- To repair or paint the surfaces coated with PVC film, we recommend to use the following products: - Water based acrylic enamels (for repairing or painting). - Bi-component polyurethane enamels with volatile solvents (for repairing).

Note: the subsequent repairing or painting may restrain the anti-bacterial action of Kingspan CLEANsafe 120

6. Storage and Processing Advices

6.1	Storage	- Kingspan CLEANsafe 120 pre-coated steel, both sheets and coils, must be stored in a and dry place, without sudden changes of temperature, in order to avoid the possibility of condensation. The presence of humidity may trigger a corrosion process dangerous for steel and its coating, but also for the adhesion of polyurethane. - Material covered with the adhesive film for temporary protection must be stored away from heat sources and sun rays.
6.2	Processing	- Kingspan CLEANsafe 120 pre-coated steel should be processed within 6 months from shipment with the most suitable equipment in order to avoid abrasions of the film surface and/or braking of the same that may compromise its anti-bacterial action. - Bending and roll forming machines should consider, besides the final thickness of pre-coated steel, also possible tolerances to avoid re-rolling processing. - We recommend not to process our material at a temperature lower than 18°C.

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