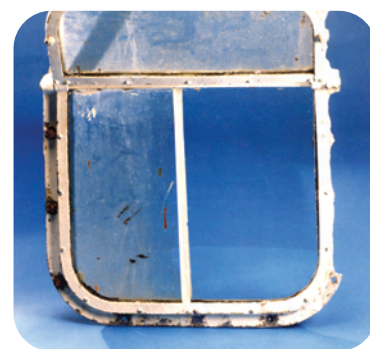


... The ClearShield® System



Developed specially for the renovation, protection and maintenance of marine glass.

- **Makes cleaning much easier and reduces its frequency**
Always much easier to clean – frequency of cleaning reduced by 50% on average
- **Resists contamination and staining by seawater deposits, metal oxides and engine exhaust**
Sparkling appearance – cleaner image – looks cleaner and newer for longer
- **Enhances visibility for crew and passengers**
Better views – increased customer satisfaction – reduced complaints – improved safety
- **Versatile application**
Applied prior to installation or onsite when the vessel is in port or drydock – treatment can be easily integrated with normal maintenance schedules



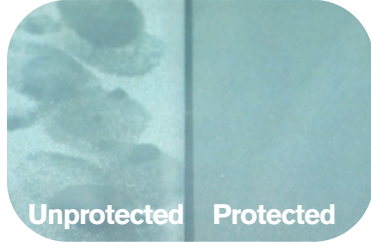
marine

GLASS RENOVATION

Ritec's unique ClearShield System uses specialist products to remove all types of contamination – both organic and inorganic – from the glass surface when regular cleaning is no longer effective. Renovation is the ideal solution for exterior glass surfaces that have become heavily contaminated and stained. Interior glass, including sandblasted glass, can also be renovated.



Glass staining and corrosion



Effective on sandblasted glass



Seasalt contamination



For better visibility, choose ClearShield

• Exterior Glass

Bridge glass • Lounge glass • Canopy glass • Deck lido glass • Poolside surround glass

Inevitably, exterior glass is exposed to heavy weathering. Typical sources of contamination include chemical attack from ship's funnels, alkalinity from seawater and atmospheric moisture corrosion and pollution. Over time, contamination build-up on the glass surface affects its appearance and visibility – and safety. Effective cleaning is difficult, if not impossible, and glass replacement can be too costly in terms of both time and money.

• Interior Glass

Cabin glass • Shower enclosures • Spa glass • Decorative / sandblasted glass

Dirt and fingermarks on decorative glass (especially sandblasted glass) and limescale on spa and shower glass will result in an unsightly and unhygienic appearance. This creates an unclean impression, resulting in passenger dissatisfaction.

Renovation is a simple procedure and can be carried out whilst the ship is in port or in dry dock, fitting in with normal operating and maintenance schedules. **Renovation** removes all contaminants that have not yet etched the glass during the corrosion process. The surface is restored to a pristine 'as-new' appearance for improved clarity and a cleaner appearance, satisfying passengers and crew.



Unprotected



Protected

APPLICATION OF THE CLEARSHIELD SYSTEM

With over 25 years of experience, specialist ClearShield applicators can treat marine glass on any scale – from the largest of cruise liners to small vessels.

ClearShield can be applied at any stage of the glass life-cycle: in the window fabricator's factory; during construction in the shipyard; in service; or during refit in a drydock.



GLASS PROTECTION

ClearShield is a unique treatment that protects glass from staining by contaminants and surface corrosion. Glass protected with ClearShield looks newer for longer, increases customer satisfaction, improves safety due to better visibility and reduces maintenance costs. Many ship owners are proactive by protecting their glass with ClearShield during the ship's construction.

For all exterior and interior glass, including sandblasted glass, ClearShield:

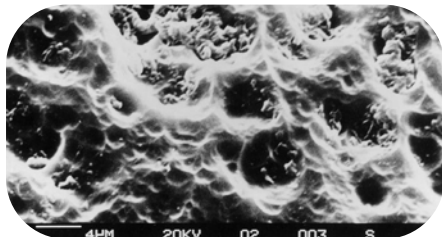
- **Resists staining and discolouration**
- **Is always easier to clean and keep clean**
- **Halves frequency of cleaning on average**

In addition:

- **Treated sandblasted glass resembles the attractive satin finish of acid-etched glass, for a higher quality appearance**
- **Protected glass will not return to a heavily contaminated or stained condition again provided simple maintenance procedures are followed.**
- **The performance of glass treated with ClearShield is guaranteed.**

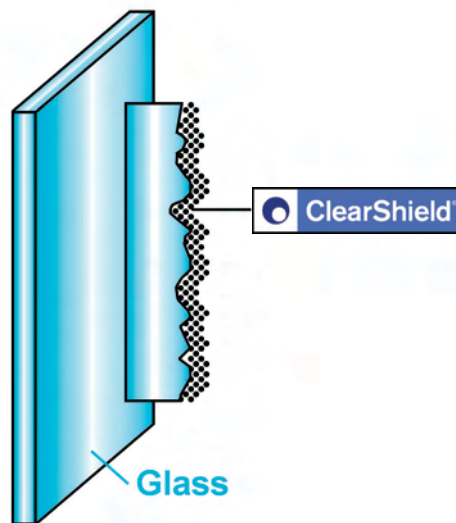


So for marine glass that looks like new for longer, choose ClearShield.



Micrograph of aged glass

The surface of glass is not smooth, consisting of microscopic peaks and potholes. Organic and inorganic contaminants fill these potholes and chemically react with the glass, firmly bonding to the surface. Because of this, cleaning glass becomes more difficult.



When applied onto ordinary glass, ClearShield cross-links to form a strong chemical bond that is completely transparent, chemically inert, non-hazardous and UV stable. Unlike a coating, ClearShield is a polymeric resin and becomes part of the glass so will not peel, flake or crack.

ClearShield prevents contaminants from bonding onto the surface and limits further damage caused by corrosion and chemical attack. Dirt can easily be removed using normal cleaning methods.

GLASS MAINTENANCE

Typically, ClearShield reduces the frequency of cleaning by half. Like 'non-stick' cookware, the maintenance of ClearShield-protected glass does not require harsh and abrasive cleaning chemicals and methods.

The ClearShield System has a full range of highly effective After-Care products which are available that is:

- **Kind to the glass and the environment**
- **Versatile to suit specific contamination**
- **Economical and simple to use**

ClearShield. For long-lasting protection of glass.



TRACK RECORDS

ClearShield has been applied on interior and exterior glass of a range of marine vessels including ferries, cruise liners, yachts, container ships – before, during or after construction – for over 25 years (a list of references is available on request). Below is a small selection of marine vessels treated with ClearShield.

PRINCESS CRUISES

The first Princess Cruises ships to have ClearShield were the *Regal Princess* and the *Crown Princess*. Exterior glass of these ships was renovated and protected in 1987. Since then, more than 15 other Princess Cruise ships have had the benefit of ClearShield protection.

“Not only do the operators of these ships appreciate the benefits in keeping windows clean but also the considerable savings in manpower through reduced maintenance”, said the company’s Project Manager.



HSS STENA EXPLORER

Treatment of the *Stena Explorer* with ClearShield was commissioned after a successful trial period, which had been monitored closely by the ship’s captain. The ferry was treated whilst in dry dock, so cherry pickers were used to complete the project within a tight deadline.

Stena made the decision to use ClearShield to stop staining of the glass and to reduce the frequency of cleaning.



ATLANTIC CONVEYOR

The *Atlantic Conveyor* (owned in 1985 by Cunard but purchased by ACL ten years later) was treated on-site with ClearShield.

The Chief Officer of Cunard was impressed: “The improvement in visibility through our bridge windows, in rain and heavy weather, has to be seen to be believed. A further bonus is not having to use precious manpower to wash the windows... we have just completed two winter crossings of the North Atlantic without having to once wash them manually. It is truly pleasing to see a product that really lives up to its marketing promises.”

