ENDUROSHIELD® PROFESSIONAL
TECHNICAL DATA SHEET – GLASS SURFACES

DESCRIPTION

EnduroShield® is an optically clear protective coating for glass that chemically bonds to the surface, creating a non-stick barrier resistant to corrosion, etching, and staining. However, while cleaning is made easier and less frequent, the need to clean is not eliminated. Treated glass becomes both hydrophobic and oleophobic (water and oil repellent) protecting against most forms of dirt and grime. The molecule is highly resistant to chemical breakdown by UV light giving it long term stability. This protection thereby reduces staining and etching that often forms on shower recesses, kitchen splash-backs, exterior glass, railings, curtain walls, facades, windows, and other areas where glass is subjected to harsh conditions. EnduroShield eliminates the need to use harsh and often toxic cleaners.

TECHNICAL DATA*

Type	Single Component
Appearance and colour	CLEAR TO LIGHT YELLOW LIQUID
State	Liquid
Odour Characteristic	ALCOHOL ODOUR
Flash Point	12°C (cc) (Isopropanol)
Boiling Point	82.4°C (Isopropanol)
Melting Point	-90°C (Isopropanol)
Specific Gravity	0.79 (Approximately)
Vapour Density (Air = 1)	2.1 (Air = 1)
Solubility (water)	miscible

*SDS available on request

BENEFITS

- Glass is easy to clean
- Cuts cleaning time and keeps glass cleaner for longer between cleans
- Reduces maintenance costs and protects against staining, etching and corrosion
- Helps prevent etching and pitting from cement slurry during construction
- Repels both water and oil based stains
- Helps resist fingerprints and staining on sandblasted and acid etched glass. Provides a marginal visual improvement in reducing finger marks on clear glass. Fingerprints are significantly easier to remove on all types of glass.

SUITABILITY

EnduroShield can be used on a wide range of glass types including tempered, laminated, annealed, sandblasted, acid etched, insulated low-e, facades, shower glass, railings, pool fencing, glass roofing and skylights, awnings, canopies, glass splashbacks, mirrors (do not let the product come into contact with the silvered surface) and more.

DURABILITY

EnduroShield chemically bonds with the glass substrate and can only be removed by abrasion, highly alkaline (pH level greater than 12) or acidic substances and/or removal of the top layer of the glass surface. EnduroShield is resistant to UV degradation, and as there is no film formed no coating break down will occur. When applied to new glass substrates the coating has an expected lifetime of beyond 10 years. Note: If loss of performance occurs the glass can be cleaned and the coating re-applied.

INDEPENDENT TESTING SPECIFICATIONS

Architectural Testing / Intertek (Reference C3226.02-106-31) – Testing was undertaken to provide competitive comparative testing between EnduroShield and other glass coating technologies for both abrasion resistance and repellency performance. Results showed that EnduroShield demonstrated superior ability to repel both water and oil after being subjected to repeated abrasion.

Intertek (Reference h9127.01-106-31-r0) – Testing was undertaken to evaluate EnduroShield coated glass and uncoated glass to determine haze properties and luminous transmittance properties on automotive glass. Haze properties tested 0% for both treated and untreated glass, while luminous (light) transmittance with EnduroShield increased by 0.02%.

TÜV Rheinland (test certificate Q60039967) – Testing was undertaken to evaluate durability, easy-clean functionality, safety, and quality. The certification process included verification of all safety data sheets (SDS) and product labelling requirements according to TÜV Rheinland standard 2 PfG 1921/06.11. The following tests were passed.

- UV Resistance: DIN 75220/11.1992
- Chemical Resistance
- Temperature Shock Resistance DIN EN 60068-2-14/08.2000
- Mechanical Resistance

- Adhesive Properties

*Test reports and certificates available on request

ADDITIONAL TESTING

EnduroShield has a range of testing reports available for various application requirements including:

- Silicone adhesion testing by manufacturers such as Bostic for Silicone adhesion
- Slip-resistant testing by independent by NATA Accredited laboratory
- Suction cup testing by Woods Power Grip
- Optical and thermal property testing to ASTM D1003 when applied to Pyrolytically coated glass
- Concrete or Cement Slurry Resistance

SURFACE PREPERATION

In Situ

Before applying EnduroShield, ensure the glass is thoroughly cleaned obtain maximum durability. Mildly dirty surfaces may be cleaned using EnduroClean, while hard to clean surfaces (such as high builds of soap scum, grime or tea staining) may need to be cleaned using a stronger cleaning solution or a cerium oxide paste solution to completely remove all traces of foreign material. The surface needs to be spotlessly clean and streak free when viewed from various angles. If a previous coating has been used on the surface, this needs to be completely removed before the application of EnduroShield. This may be accomplished by an application of a cerium oxide paste (cerium oxide 30% in water) and polishing. For more information and a stepwise guide for surface preparation refer to the EnduroShield Application Instructions.

Factory Application

In a glass production line, the coating can be applied post tempering and no surface preparation is required as the glass will be sufficiently clean after the tempering process. Glass that requires cleaning before the application can be washed through an automated glass washing machine.

APPLICATION METHOD

In Situ

EnduroShield can be applied by manual spray and wipe or by air operated spray gun. Avoid application in direct sunlight where possible to reduce the use of excess product due to evaporation and to reduce streaking which can be time consuming to remove. Shake well before use.

Factory Application

The coating can be applied by manual spray and wipe, air operated spray gun or via an automated spray application machine.

For further detail on application methods and procedures please refer to the EnduroShield Application Instructions available on request

TEMPERATURE & WEATHER CONDITIONS

The coating is not recommended to be applied with atmospheric and substrate temperatures lower than 10°C (50°F) or higher than 35°C (95°F). The Optimum application temperature is 15-25°C (59-77°F). In order to cure, EnduroShield reacts with atmospheric moisture and best results are obtained when the coating is applied at a range of between 30 -70% relative humidity.

SURFACE COVERAGE

Depending upon the conditions (temperature, wind, indoor or outdoor application) coverage rate will vary. In good conditions, 15ml will provide a coverage rate of one square metre (0.51 us fl oz per 10.76 sq ft) for manual application. Higher yields may be obtained using automated equipment.

CURING PROCESS

On application the carrier solvent flashes off rapidly, leaving the coated surface dry almost immediately. Once coated, the glass can be taken straight off the line or A-Frame and stacked. Lift the glass from the edges and AVOID TOUCHING the FLAT surface of treated glass for at least 5 minutes (Longer in colder conditions). Initial cure takes between 30 – 60 minutes (under standard conditions of 25°C (77°F) and 60% humidity, leave longer in colder conditions) and it is recommended to avoid allowing the glass to come in contact with chemicals for a minimum of 8 hours. A fully cured coating will be obtained after at least 7 days curing at standard conditions.

PACKING & TRANSPORTATION

Following application, the glass needs to be stored or packed with a small air gap to facilitate curing (min. 2mm gap). This can be achieved by loading in storage magazines. Plastic pegs or clip spacers can be used as an alternative, provided they have a very little footprint on the glass. While cork spacers can be used, there is a requirement for a minimum standing time of 2 minutes at 25ºC (77°F) temp and 60% relative humidity minimum (colder temps require longer) prior to placing on the glass, so that the coating has time to bond with the glass. If the glass is to be wrapped in any form of plastic directly onto the glass without an air gap after application, allow the glass to stand for a minimum of 30 minutes before wrapping. If time is not a restriction allow the glass to stand for longer. If a paper interlayer is to be placed between treated glass panels after coating, please consult with EnduroShield technical team on process and procedure recommendations.

MAINTENANCE

When cleaning the treated glass, do not use any abrasive highly acidic or alkaline cleaners. Doing so may limit or negate the effectiveness of the coating and the Limited Warranty for materials and workmanship that may apply to it. Clean the glass regularly with a clean damp microfibre cloth and mild detergent. For areas with hard water or bore water, regularly clean with a solution of vinegar and water (1 to 4) or stronger if needed to avoid the build-up of dissolved salts.

DANGEROUS GOODS INFORMATION

12°C (cc) (Isopropanol)	Transport Hazard Class: 3	Packaging Group: II
Precautions: Highly Flammable	UN No: 1219	Hazchem Code: ●2YE

SAFETY & HANDLING

Before using please refer to the Safety Data Sheet (SDS) available on our website www.enduroshield.com or upon request from your local distributor.

- Highly flammable liquid and vapour. Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- Keep container tightly closed.
- Ground/bond container and receiving equipment.
- Use explosion-proof electrical/ventilating/lighting equipment.
- Take precautionary measures against static discharge.
- Avoid breathing dust/fume/gas/mist/vapours/spray.
- Wash thoroughly after handling.
- Use only outdoors or in a well-ventilated area.
- Wear protective gloves/protective clothing/eye protection/face protection.

Eyes: If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a physician, or for at least 15 minutes.
Skin: If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a physician.
Inhalation: If inhaled, remove from contaminated area to fresh air and keep at rest in a position comfortable for breathing. Apply artificial respiration if not breathing.
Ingestion: For advice, contact the Poison Control Centre. Do not induce vomiting unless directed by medical personnel. Rinse mouth with water. Have patient drink plenty of water in small sips. Call a physician immediately.

PACKING, STORAGE & DISPOSAL

FLAMMABLE LIQUID. Store in accordance with Dangerous Goods requirements. Store out of direct sunlight in a cool, dry place. Minimum storage temperature of -10°C (14°F) with a maximum storage temp of 30°C (86°F). Ensure area is well ventilated. Please ensure the cap is tightly secured after use to maintain optimum properties of your product for its next use. The storage life of EnduroShield is at least 18 months in originally sealed containers. Dispose of contents/container in accordance with relevant regulations.

LIMITED WARRANTY

PCT Global Pty Ltd warrants that EnduroShield® will remain water resistant for a period of ten years for new glass and five years for existing glass. Please consult with your nearest authorised representative as exceptions and conditions apply. All warranty periods are from the date of application. EnduroShield must be applied and maintained as per instructions to validate and maintain the warranty. If, within the warranty period, it is determined that an area that has been treated has not remained water resistant, PCT Global, upon notification from the original applicator, will provide replacement EnduroShield® in an amount determined to be adequate to re-coat the area that the original applicator deems to be unprotected.
Warranty details are available on request

PACKAGING

Available in 1 Litre, 5 Litre, 1 Quart and 1 Gallon for easy handling.

NOTICE TO CUSTOMER

You should review the EnduroShield Technical Data Sheet and Safety Data Sheet before purchasing or using products supplied by PCT Global Pty Ltd. While all care has been taken in preparing the Technical Data Sheet PCT Global Pty Ltd cannot guarantee the accuracy or completeness of the information contained therein. Prior to using PCT Global Pty Ltd.'s products you should perform your own tests to ensure that the products are suitable for use on the surface and conditions under which the product is to be used. Other than those warranties that cannot be excluded or disclaimed, PCT Global Pty Ltd. hereby disclaims and excludes, to the fullest extent permitted by law, all warranties, express or implied, in relation to goods supplied by PCT Global. Further, PCT Global Pty Ltd.'s liability for breach of any warranty that cannot be excluded or disclaimed is hereby expressly limited to the resupply of goods of the same description or the cost of resupplying goods of the same description. For SDS or to consult with a coating professional, call +61-2-9674-9299 (Australia) or +1-805-617-4609 (U.S.A) ©2019 PCT Global Pty Ltd 5/21 Bearing Rd, Seven Hills, NSW 2147

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