

DESCRIPTION

HARDOFLEX is a highly versatile coating solution designed to waterproof, protect and enhance various concrete surfaces across a wide range of applications. It is ideal for coating concrete roofs, terraces, walls and balconies, providing a protective barrier against weathering. **HARDOFLEX** excels on complex structures like domes and arches, conforming seamlessly to intricate geometries while being applicable to diverse materials such as timber, asbestos, zinc sheets, and tiles. It effectively safeguards concrete from carbonation and chloride ingress, making it suitable for multi-story car parks, underpasses, bridges, and commercial buildings. Additionally, **HARDOFLEX** is perfect for pool decks, outdoor parking lots, industrial facilities, public infrastructure like sidewalks and bike paths, roof gardens, sound barriers, marine structures, and wastewater treatment facilities. It also serves well in historic building restoration, offering modern protection without compromising aesthetic integrity. Overall, **HARDOFLEX** combines flexibility, durability, and visual appeal, ensuring enhanced performance and longevity for concrete surfaces in various environments.

USES

1. **Concrete Roofs and Terraces:** HARDOFLEX is ideal for concrete roof slabs, providing a protective waterproof layer that guards against weathering and enhances durability. It can be applied to terraces and balconies, ensuring these outdoor spaces remain safe and visually appealing.
2. **Complex Structures:** This product is particularly well-suited for structures with complicated geometries, such as domes, arches, shells, folded plates, parabolas, and corrugated sheets. Its flexibility allows it to conform to diverse shapes, ensuring comprehensive coverage and protection. Additionally, HARDOFLEX can be applied to various materials, including timber, asbestos or fiber cement, zinc sheets, asphalt, built-up felt, and tiles, making it a highly adaptable solution.
3. **Protection Against Carbonation and Chloride Ingress:** HARDOFLEX is effective in protecting concrete structures from carbonation and chloride ingress, which can lead to deterioration over time. It is particularly useful in environments like multi-storey car parks, underpasses, and bridges, where concrete is often exposed to harsh conditions. The product can also be used on soffits, wing walls, and for concrete repairs in both commercial and

- industrial buildings, ensuring long-lasting protection against environmental factors.
4. Ideal for coating pool decks and surfaces, **HARDOFLEX** provides a waterproof barrier that resists chlorine and UV damage, ensuring a safe and attractive environment.
5. Beyond multi-storey car parks, **HARDOFLEX** can be used as surface coating for outdoor parking lots, enhancing durability against vehicle traffic and environmental exposure.
6. It is suitable for protecting floors and walls in factories and warehouses, where chemical resistance and durability are critical.
7. **HARDOFLEX** can be applied to sidewalks, pedestrian walkways, and bike paths, providing a slip-resistant surface while extending the lifespan of concrete structures.
8. Perfect for use in green roof applications, **HARDOFLEX** protects the underlying concrete while allowing for the integration of vegetation.
9. It can be used on sound barrier walls along highways or railways, providing both aesthetic appeal and functional protection against weather elements.
10. **HARDOFLEX** is effective for use in marine environments, such as docks and piers, where it can withstand the harsh effects of saltwater exposure.
11. Its resistance to chemicals and moisture makes it suitable for use in environments where exposure to water and various chemicals is common.
12. **HARDOFLEX** can be utilized to protect and restore historical concrete structures, providing a modern protective solution without compromising aesthetic integrity.

BENEFITS AND FEATURES

1. **Safety:** Formulated as a safe, water-based acrylic with no solvents, fire hazards, or strong odors.
2. **Easy Cleanup:** Cleanup is simple with water.
3. **User-Friendly:** One-component system that can be easily applied directly from the pail.
4. **Superior Resistance:** Excellent resistance to UV rays, weathering, and CO2 exposure.
5. **Versatile Application:** Ideal for both horizontal and vertical surfaces, with excellent build properties and no need for topping.
6. **Wide Compatibility:** Suitable for a variety of substrates.
7. **Color Options:** Available in various colors that are colorfast and durable.
8. **Flexibility:** Highly flexible, accommodating substrate movement and minor cracking.

9. **Acoustic Properties:** Provides acoustic dampening for enhanced comfort in any environment.
10. **Long-Term Durability:** Designed for excellent durability and low maintenance.
11. **Efficient Application:** Quick and easy application saves time on projects.
12. **High-Quality Composition:** Contains high quality raw material and high resin content for superior performance.
13. **Energy Efficiency:** Reduces energy costs due to effective heat insulation.
14. **Foot Traffic Resistance:** Durable enough to withstand foot traffic without damage.

broken, slipped or missing tiles, sheets, slates or other forms of covering must be replaced or re-fixed. Cracks in asphalt or built-up felt systems should be filled with mastic and allowed to cure.

Metal: In the case of metal surfaces, rust and other contaminated and loose particles shall be removed. All cracks shall be treated properly before the application of **HARDOFLEX**.

PRIMER COAT

To ensure optimal adhesion and performance of **HARDOFLEX**, the primer coat is a critical step in the application process. Begin by preparing the primer by diluting 1 kg of **HARDOFLEX** primer with 2 liters of clean water. This dilution is essential as it helps the primer penetrate the concrete surface more effectively, enhancing its bonding capabilities.

Once the primer is mixed, apply it evenly using a sprayer, brush, or roller. Each method has its advantages: a sprayer can provide a smooth and uniform application, while a brush or roller allows for more controlled application, particularly in corners or intricate areas. Whichever method you choose, ensure that the primer is spread evenly across the surface to avoid any inconsistencies.

After applying the primer, it is crucial to allow it to dry thoroughly. The drying time is approximately 30 minutes, but this can vary based on environmental conditions such as temperature and humidity. Ensure that the surface is completely dry before proceeding with the application of the **HARDOFLEX** coating. Properly drying the primer coat is essential for achieving the best adhesion and performance of the subsequent layers, ultimately contributing to the durability and longevity of the finished surface. Following these guidelines will ensure that your application of **HARDOFLEX** is successful and effective.

PRODUCT DATA	
Tensile strength	375 psi
Elongation	560 %
Shore hardness	74 Kg/cm ²
Tear strength	23 Kg/cm ²
Adhesion to concrete	13.5 Kg/cm ²
Abrasion resistance	abrasions wear (Wear index135)
Specific gravity	1.28 @ 23°C
Recovery	90%
Solid content	65% min.
Flash point	NIL
Finish	Matt
Fire Resistance of wet film	Non-flammable
Drying time @ 25° C	Touch dry: 1 hour Hard dry: 24 hours Full cure: 7 days
Water vapor transmission	45 gms /m ² per 24 hours
Chloride ion diffusivity	4.98 x 10 ⁻¹⁰ cm ² /s
Reduction in chloride ion ingress @ 28 days	94%
Carbon dioxide diffusion	R value at 325 microns greater than 161m
Application temperature	5°C to 50°C
Chemical resistance	resistant to spillage of gasoline, diesel, sewage, weak acids and alkalis

SURFACE PREPARATION

Concrete: The surface has to be cleaned thoroughly so that all dirt, oil, laitance, dust, grease, mold release agent and residual curing compounds should be removed together with any other contaminant that could impair adhesion. Previous waterproofing treatments should be either completely removed or put in order. Cracked,

APPLICATION

Initial Preparation

The first coat of **HARDOFLEX** should be applied to a dry, primed surface to ensure optimal adhesion. It is crucial to allow the first coat to fully dry before applying the second coat. This typically takes about 2 to 3 hours, depending on weather conditions.

Climate Considerations

In hot, dry climates, dampening brushes can aid in the application process, helping to maintain moisture and facilitate an even application.

Poor Condition or Movement-Prone Roofs

For roofs in poor condition or where significant movement is expected, it is recommended to use a sandwich system that incorporates reinforcing fabric.

This additional support enhances the durability and flexibility of the membrane.

Membrane Installation

When applying the reinforcing membrane, imbed it into the wet first coat using a roller or stiff brush. Take care to avoid the formation of bubbles or wrinkles. Ensure that membrane overlaps are a minimum of 100 mm on end laps and 75 mm on side laps to maintain integrity.

Second Coat Application

Once the first coat has dried sufficiently to support light foot traffic, apply a second coat of **HARDOFLEX** at a coverage rate of 0.5 kg/m². This ensures that the membrane is completely saturated, providing maximum protection.

Finishing Touches

After the second coat has dried, apply a finishing coat of **HARDOFLEX** at right angles to the second coat, also at a rate of 0.5 kg/m². This final layer enhances the overall performance and appearance of the coating.

CLEANING OF TOOLS

After applying **HARDOFLEX**, it is essential to clean all tools and application equipment thoroughly with water immediately to prevent any residue from hardening on the surfaces. Proper cleaning ensures that your tools remain in good condition for future use and prevents the buildup of cured material, which can be challenging to remove later. If the material hardens or cures on your tools, it will require mechanical removal, which can damage the tools and make them less effective. To maintain the quality and longevity of your equipment, take the time to rinse brushes, rollers, and any other application tools right after use. This proactive approach not only saves time and effort down the line but also ensures a clean working environment, facilitating a smoother application process for any subsequent projects. Always remember that quick and efficient cleaning is a critical step in the overall maintenance of both your tools and the quality of your work.

COLOUR

HARDOFLEX is primarily available in a white colour, which offers several benefits, including excellent UV reflectivity and heat resistance, helping to keep surfaces cooler in warm climates. This makes it an ideal choice for roofs and outdoor applications, where temperature management is essential.

For those seeking specific aesthetic preferences or design requirements, **HARDOFLEX** can be produced in a variety of other colours upon request. This customization allows users to match the

coating with existing structures or personal design visions, ensuring that functionality does not come at the expense of visual appeal. By accommodating colour requests, **HARDOFLEX** provides versatility, making it suitable for a broader range of applications while still maintaining its protective qualities. If you have a specific colour in mind, please reach out to inquire about availability and options.

COVERAGE

To achieve a total dry film thickness (DFT) of 1 mm, a calculated application rate of 1.5 kg/m² is required. Each coat should be evenly applied to ensure uniform coverage and optimal adhesion. The careful layering is essential not only for achieving the desired thickness but also for enhancing the overall durability and performance of the coating. This method allows for better control over the finish and ensures that the underlying surface is adequately protected from environmental factors, thereby extending the lifespan of the coated structure. Proper surface preparation prior to application will further enhance the effectiveness of the coating, leading to a robust and aesthetically pleasing final result.

PACKING

18 Kg pails

STORAGE

The shelf life of this product is one year when kept in unopened packs and stored at temperatures below 35°C in a shaded environment. Proper storage conditions are crucial to maintaining the quality and effectiveness of the product. If the product is stored at higher temperatures, the shelf life may be significantly reduced, potentially leading to deterioration in performance and reliability.

To maximize the longevity of the product, it is essential to avoid exposure to direct sunlight and to keep it in a cool, dry place. Adhering to these storage guidelines not only helps preserve the product's integrity but also ensures optimal results when it is eventually used. Always check the packaging for any additional storage recommendations or expiration dates to ensure the best performance.

PRECAUTIONS

HARDOFLEX should not be applied when temperatures drop below 5°C and are expected to continue falling. Low temperatures can adversely affect the curing process, leading to compromised adhesion and overall performance of the product. Applying **HARDOFLEX** in cold conditions may result in a weak bond or incomplete setting, which could ultimately undermine the durability of the coating.

Additionally, it is important to refrain from proceeding with the application if rainfall is imminent. Moisture can interfere with the curing process, preventing the product from adhering properly to the surface and potentially causing defects. If application must occur, it should only be done in a sheltered or protected location to shield the product from direct exposure to rain.

Furthermore, **HARDOFLEX** should not be exposed to moving water during the application process. Contact with water can disrupt the setting and curing phases, leading to uneven finishes or loss of effectiveness. Ensuring that the application area is dry and stable is crucial for achieving the best results. Following these guidelines will help ensure that **HARDOFLEX** performs optimally and lasts as intended.

HEALTH & SAFETY

When applying **HARDOFLEX**, prioritizing safety is crucial. It is essential to wear appropriate protective clothing, gloves, and eye protection. This gear helps minimize the risk of skin contact with the material and protects your eyes from potential splashes during application.

Direct contact with the eyes should be avoided at all costs. If contact occurs, rinse the affected eye immediately with plenty of water and seek medical attention to ensure proper care. This step is vital for preventing any long-term damage or irritation.

HARDOFLEX is classified as a non-flammable material, making it safe to use in various environments, including those where flammable substances might pose a risk. Once cured, **HARDOFLEX** becomes inert and harmless, which means it poses no significant health risks to individuals in the vicinity.

By adhering to these safety precautions, you can ensure a safe and effective application process while maintaining a healthy working environment. Taking the time to implement these measures not only protects you but also contributes to a more efficient and successful project outcome.

This data sheet is issued as a guide to the use of the product(s) concerned. Whilst Mitchell Construction Chemicals endeavours to ensure that any advice, recommendation, specification or information is accurate and correct, the company cannot - because Mitchell has no direct or continuous control over where and how Mitchell products are applied - accept any liability either directly or indirectly arising from the use of Mitchell products, whether or not in accordance with any advice, specification, recommendation, or information given by the company.