GREEN WALL WATERPROOFING

BASED ON THE HYPERDESMO®-PB SYSTEM

ALCHIMICA® BUILDING CHEMICALS

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WHY CHOOSE ALCHIMICA IN GREEN SYSTEMS WATERPROOFING PROJECTS?

Waterproofing green systems such as green roofs, terraces, walls, podiums and planter boxes is essential due to the increased moisture and water exposure associated with plants and irrigation. Without proper waterproofing, water infiltration can cause structural damage and mold growth, compromising the durability of these structures. Effective waterproofing creates a protective barrier that prevents water penetration and helps maintain structural integrity. It also preserves the health of the vegetation by ensuring the irrigation system functions correctly, preventing overwatering and root rot.

ALCHIMICA's waterproofing solutions for green systems offer several key benefits. They protect against water damage by creating a barrier that prevents soil and irrigation water from causing potensial damage to structures. By stopping mold and mildew at the source, these solutions also promote a healthier environment. Proper waterproofing ensures efficient irrigation, preventing overwatering that could harm plant health or aesthetic appeal. ALCHIMICA's liquid-applied membranes are durable and elastic, filling voids and cracks for long-term protection. They also maintain energy efficiency by preventing water infiltration that could degrade insulation. Investing in ALCHIMICA's waterproofing is a cost-effective strategy that helps avoid future repairs and replacements. Moreover, these solutions comply with international standards, ensuring reliability and adherence to building codes.

Green systems with poor waterproofing can face ponding water due to inadequate drainage. Ponding water can cause prolonged moisture exposure, leading to deterioration and costly repairs. ALCHIMICA's Liquid-applied waterproofing systems, prevent these issues by providing high ponding water resistance and bonding directly to the substrate, protecting against the formation of puddles due to poor drainage design. These membranes also prevent blistering and peeling, reducing the risk of structural deterioration. HYPERDESMO® and HYPERDESMO®-PB membranes from ALCHIMICA are exceptionally resistant to ponding water, chemicals, and mechanical stress.

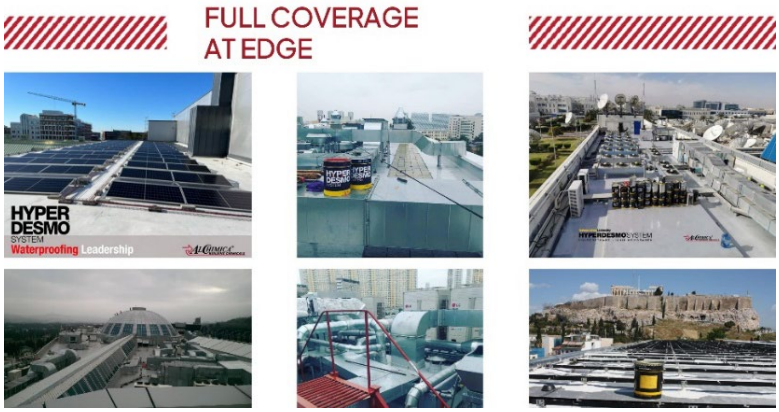
ALCHIMICA is a global leader in polyurethane waterproofing solutions. With over 42 years of expertise, the company overcomes the challenges that others deem impossible. Its innovative PU-based materials achieve unparalleled performance levels. ALCHIMICA's knowledge and experience in liquid waterproofing, repair, sealing, and ETICs deliver comprehensive solutions that comply with international industry standards, protecting green systems in all environments.

ALCHIMICA'S POLYURETHANE LIQUID MEMBRANES

To ensure effective waterproofing, it is crucial to select PU membranes that meet specific criteria: impermeability, flexibility, durability, breathability, and resistance to environmental factors such as UV radiation, heat, humidity, and chemical exposure.

ALCHIMICA is a leader in the waterproofing industry, pioneering the use of liquid applied polyurethane membranes. With a commitment to high performance and durability, ALCHIMICA's products excel in applications where seamless systems are paramount, whether for structural integrity or aesthetic appeal. These membranes offer decisive advantages, particularly in complex scenarios like geometrically complicated connections with ventilation outlets or upturns.

Throughout its history, ALCHIMICA has continuously expanded its range of polyurethane liquid membranes to provide versatile installation alternatives and long-lasting solutions. From one and two-component polyurethane liquid membranes to bitumen-extended polyurethanes, water-based liquid polyurethane membranes, and advanced technology polyurethane dispersion (PUD) products, each solution is meticulously designed to address a wide array of waterproofing challenges with optimal performance and durability.



ALCHIMICA's liquid membranes offer durability upon application, elasticity to withstand various stresses and traffic, and resistance to chemicals, and ponding water. These properties meet stringent technical specifications, making them suitable for a diverse range of applications. The core objective of ALCHIMICA is to develop waterproofing systems that are competitive, simple to apply, and accessible to all professionals. By prioritizing ease of application and reliability, ALCHIMICA empowers users to achieve effective waterproofing solutions efficiently and effectively. The membranes are seamless, durable, and flexible and provide superior waterproofing performance, waterproof and moisture permeable, preventing water penetration, allowing moisture to escape, and reducing the risk of degradation and failure over time. With mechanical, thermal, and chemical resistance properties and breathability, ALCHIMICA's PU membranes ensure the longevity and efficiency of waterproofing systems.

ALCHIMICA's commitment to innovation and excellence has revolutionized waterproofing technologies globally. With a comprehensive range of polyurethane liquid membranes tailored to meet the demands of modern construction projects, ALCHIMICA remains the premier choice for effective, long-lasting waterproofing solutions.

ALCHIMICA'S BITUMEN-EXTENDED POLYURETHANE TECHNOLOGY

HYPERDESMO®-PB technology is ALCHIMICA's innovative approach to waterproofing, utilizing bitumen-extended polyurethane technology. This technology leverages the longstanding use of bitumen in waterproofing and protection applications, enhancing it with the flexibility and resilience of polyurethane. Bitumen, known for being an excellent humidity barrier, provides robust protection against moisture, while polyurethane (PU) resins introduce superior flexibility to the bitumen, ensuring the material can handle movement and stress without cracking. ALCHIMICA's pioneering efforts have led to the creation of HYPERDESMO®-PB, a product line that combines these materials to produce waterproofing membranes of exceptional quality.

Bitumen-extended polyurethane technology marks a significant advancement in waterproofing materials by ingeniously merging the durability of bitumen with the flexibility of polyurethane. This innovative blend results in a composite that is not only resilient but also adaptable, making it suitable for a vast array of construction and refurbishment projects. The HYPERDESMO®-PB series of products exemplify this technology, offering liquid-applied waterproofing membranes that integrate the best attributes of their base materials to form a protective layer that is exceptionally elastic and hydrophobic. After curing, HYPERDESMO®-PB creates a robust membrane that adheres strongly to a variety of surfaces, including concrete, metal, and asphalt. The versatility of HYPERDESMO®-PB is evident in its wide range of applications—it can be effectively used in foundations, on both horizontal and vertical surfaces, beneath tiles on balconies and verandas, and for waterproofing green roofs, flat and inclined concrete roofs in non-exposed areas, as well as in complex structures like tunnels and bridges. It is also suitable for areas experiencing heavy traffic and for moisture-rich environments such as bathrooms and saunas.

The benefits of using bitumen-extended polyurethane are manifold. The material exhibits enhanced durability, resisting weathering, chemicals, and physical wear. Its superior elasticity allows it to comfortably handle the natural expansion and contraction caused by temperature fluctuations, maintaining its integrity over time. The strong adhesion of the material ensures a continuous and effective barrier against water ingress on various substrates. Its hydrophobic properties keep surfaces dry, crucial in preventing water damage. The seamless nature of the application eliminates joints or seams, which are potential weak points for leaks, thereby enhancing the overall effectiveness of the waterproofing system. The technology is not only versatile, fitting a broad range of applications but also cost-effective, with the potential for significant long-term savings on maintenance and repairs. Furthermore, some formulations of bitumen-extended polyurethane are designed to be environmentally friendly, reducing the ecological impact associated with traditional waterproofing materials.

The HYPERDESMO®-PB products stand out in the field of construction for their robust, flexible, and durable solutions that meet diverse waterproofing needs. Their reliability and adaptability make them a preferred choice among professionals in the construction industry, underscoring the practical benefits and innovative application of bitumen-extended polyurethane technology.

GREENING THE URBAN GRID

As cities around the world continue to grow, the challenge of developing sustainable, livable urban spaces becomes increasingly urgent. Within the construction industry, a transformative approach has taken root through the adoption of green infrastructure such as green roofs, green terraces, green walls, podiums and planter boxes. This innovative trend, which integrates elements of nature directly into building designs, is reshaping urban landscapes, offering plenty of environmental, economic, and social benefits.

GREEN ROOFS: A LAYERED APPROACH TO SUSTAINABILITY

Green roofs are categorized based on their depth and intended use: extensive, intensive, and semi-intensive. Extensive green roofs, often not accessible, are characterized by their low-profile, maintenance-free vegetation, suitable for covering large areas efficiently. They are typically planted with drought-resistant species such as sedums, which thrive in harsh rooftop environments. These roofs excel in improving air quality and managing stormwater runoff, making them a practical choice for large commercial buildings. In contrast, intensive green roofs are designed as accessible green spaces that can support a wide range of plant life, including trees and shrubs. They resemble elevated parks with amenities such as walkways and benches, providing valuable recreational spaces in urban settings. The semi-intensive options offer a middle ground, supporting more diverse vegetation than extensive roofs but requiring less maintenance than intensive designs, suitable for residential and smaller commercial buildings.

TERRACES: EXPANDING URBAN GREEN SPACES

Modern terraces are being redefined in the context of sustainable construction. Beyond providing outdoor leisure space, these terraces are increasingly integrated with green features such as vertical gardens and sustainable water management systems. They not only enhance the building's aesthetics but also contribute to its environmental footprint by mitigating heat islands and improving local air quality. Such terraces are becoming essential in urban environments, where direct contact with nature is limited.

GREEN WALLS: VERTICAL GARDENS IN URBAN ARCHITECTURE

Green walls, which encompass living walls and green facades, offer a versatile solution for greening urban environments where horizontal space is limited. Living walls are equipped with systems that allow for the growth of plants vertically by providing necessary soil, water, and nutrients. This can transform indoor and outdoor walls into lush, living environments. Green facades use climbing plants that grow on structures attached to the walls, enhancing a building's insulation and reducing its energy needs.

PLANTER BOXES: FLEXIBLE GREEN SPACES FOR ALL SCALES

Planter boxes serve as a versatile option for integrating greenery into urban spaces of any size. These containers can be strategically placed on balconies, rooftops, or public areas to offer bursts of nature in settings where planting directly into the ground isn't feasible. Planter boxes accommodate a wide variety of vegetation, from simple ornamental plants to small shrubs and vegetables, providing flexible, low-maintenance solutions for enhancing urban greenery. They also allow for modular designs that can be rearranged to fit different spaces and requirements, making them ideal for both residential and commercial settings. Their adaptability means that they can be utilized in new developments or retrofitted onto existing structures, effectively greening cityscapes and supporting urban biodiversity with minimal disruption.

GREEN PODIUMS: ELEVATING GREEN SPACES IN URBAN DESIGN

Green podiums offer a unique blend of functionality and sustainability, providing elevated platforms that integrate greenery directly into the urban grid. These podiums, often constructed above parking garages or commercial spaces, create a raised green area that can serve as recreational spaces, community gardens, or even urban farms. They maximize the use of limited

urban space, offering expansive areas for nature to thrive in densely populated environments. Besides their aesthetic appeal, green podiums help manage stormwater by reducing runoff, improve air quality through increased plant life, and mitigate the urban heat island effect. Their accessibility allows residents to experience a retreat amidst the cityscape, promoting mental well-being and encouraging social interaction. By providing these elevated green spaces, architects and developers can redefine the relationship between urban infrastructure and nature, fostering a harmonious, sustainable future for city dwellers.

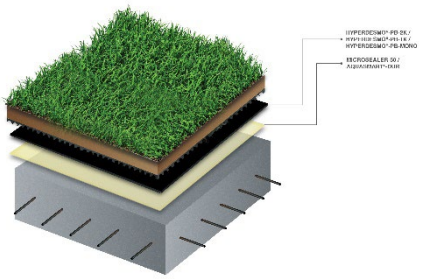
KEY FEATURES & BENEFITS OF GREEN SYSTEMS

The introduction of these green systems significantly impacts various aspects of urban life. Environmentally, they reduce pollution, decrease the urban heat island effect, and promote biodiversity. Economically, buildings with integrated green systems often see increased property values and reduced operational costs due to better insulation and decreased energy usage. Socially, these features have been shown to enhance mental health and well-being by providing urban dwellers with much-needed green spaces. These green features are applicable not just in new constructions but also in existing buildings. Retrofitting enhances energy efficiency and extends the lifespan of building materials by providing better insulation and protecting against environmental stresses. Such updates are often more feasible in urban areas than new projects, supporting citywide sustainability efforts like improved air quality and effective stormwater management.

Architects are crucial in weaving green roofs, walls, and terraces into buildings, balancing environmental goals with aesthetic values. By embedding green infrastructure early in design phases, architects can optimize building layouts to maximize environmental and visual benefits, promoting a symbiotic relationship between architectural excellence and ecological responsibility. Green infrastructure is adaptable, enhancing everything from small homes to massive urban developments. In small-scale settings, green elements can provide

critical outdoor spaces and improve building efficiency. In larger projects, they can transform buildings into eco-friendly complexes that offer inviting natural spaces for occupants and visitors alike. The integration of green features is a clear sign of the construction industry's shift towards sustainable practices. These elements are crucial, contributing to the ecological and social framework of urban areas and fostering healthier, more sustainable lifestyles. As this trend grows, it will continue to influence urban architectural design, proving that modern development can seamlessly merge with nature to foster smarter, greener cities. This progressive approach not only addresses current environmental challenges but also sets a new standard for future innovations in the construction and architectural fields.

GREEN ROOF



While the integration of green infrastructure such as roofs, terraces, and walls offers significant environmental, economic, and social benefits, implementing these systems presents certain challenges. High upfront costs, ongoing maintenance requirements, and architectural limitations can deter some projects. Additionally, the selection of proper materials is crucial to ensure longevity and functionality, particularly in the waterproofing layers that protect the building from moisture damage. Addressing these challenges requires a combination of innovative materials and strategic planning. Alchimica offers comprehensive waterproofing solutions specifically designed for green infrastructure applications. HYPERDESMO®-PB-2K is a globally recognized liquid-applied waterproofing membrane that is ideal for green systems. It offers superior protection and adaptability, making it a trusted solution for green roofing projects around the world.

The correct selection of durable and suitable materials is paramount in overcoming the technical challenges of green roof construction. By using advanced, compatible products from ALCHIMICA, architects, and developers can ensure that their green infrastructure projects are not only visually appealing and environmentally beneficial but also structurally sound and economically viable. This balanced approach demonstrates a comprehensive understanding of the complexities involved in sustainable urban development.

EN 1504-2

EN 1504-2 is a European standard that focuses on surface protection systems for concrete, aiming to prevent deterioration due to environmental exposure, chemical attack, or physical damage. It covers a wide range of products and aims to enhance the durability and longevity of concrete structures by specifying performance criteria for protection systems. The standard outlines various aspects of concrete repair and protection, including the assessment of existing structures, preparation of surfaces, selection of repair materials, application techniques, and quality control measures.

One key component of EN1504-2 is the assessment of the condition of concrete structures prior to repair and protection activities. This involves evaluating factors such as damage extent, presence of cracks or defects, and environmental conditions affecting the structure. Proper surface preparation is essential for achieving strong adhesion between the substrate and repair materials, maximizing performance and durability.

The standard also provides guidelines for the selection of repair materials based on compatibility, durability, and performance requirements. It addresses application techniques for repair and protection systems, including mixing, placing, and curing procedures. Quality control measures are also a key aspect of EN1504-2, ensuring compliance with specified requirements throughout the repair and protection

process. By following these standards, professionals can ensure the durability, safety, and longevity of concrete infrastructure, contributing to sustainable development and the preservation of critical assets.

THE PURPOSE OF ROOT RESISTANCE PROPERTIES

In construction, waterproofing has evolved into a critical concern, especially in projects that interact with soil and plant roots. Structures like green roofs, planter boxes, and below-grade foundations face unique challenges due to persistent root infiltration. The growing emphasis on sustainable construction practices, including urban green spaces, demands innovative waterproofing solutions that can handle aggressive root growth while maintaining long-term structural integrity. ALCHIMICA's HYPERDESMO®-PB-2K and HYPERDESMO®-PB provides an exceptional solution to these challenges, utilizing bitumen-extended polyurethane technology to provide unmatched protection. Root resistance ensures that waterproofing membranes prevent plant roots from penetrating structural barriers, preventing water leakage and structural damage. This is particularly crucial in environments where waterproof membranes are in direct contact with soil and vegetation. Key applications include:

GREEN ROOFS, TARRACES, PODIUMS &WALLS

Green roofs integrate vegetation into building rooftops, providing ecological benefits like natural insulation and reducing urban heat islands. However, their sustainability depends on maintaining the structural integrity of the building. Waterproofing membranes must prevent root infiltration into the roofing materials, as roots can cause water damage and compromise the structure. A root-resistant membrane ensures the vegetation remains isolated from the building, providing a barrier to root penetration and supporting the longevity of the green roof system.

BELOW-GRADE WATERPROOFING

Below-grade construction involves waterproofing basements, foundations, and tunnels, which are directly exposed to soil. This creates potential vulnerabilities, as plant roots from nearby trees and vegetation seek moisture and nutrients. If not effectively resisted, these roots can compromise the waterproof membrane, leading to

water leakage and damage. A robust root-resistant membrane is essential for protecting below-grade structures from aggressive root growth.

PLANTER BOXES

In both commercial and residential environments, planter boxes are used to cultivate plants, often on rooftops or decks. If plant roots breach the waterproof membrane, water leakage could cause severe damage to the structure. A root-resistant membrane ensures water is contained within the planter box, preventing water damage to the surroundings and maintaining structural integrity.

Recognizing the need for comprehensive root resistance in waterproofing, ALCHIMICA has developed a wide range of products with root-resistant properties. Many of ALCHIMICA's materials have even been certified in compliance with international standards such as UNE 53420:1989 to meet the specific needs of projects and assignments requiring this certification. For more information about the certified materials and certificates, please feel free to contact us at alchimica@alchimica.com.

PREPARATION

For successful and safe waterproofing applications specific tools and equipment are required. Each application might have different requirements.

Minimum application equipment includes protective clothing, a 1KW slow-speed drill, and a brush, roller, or airless spray machine for mixing and application. Before installing the system, the weather working conditions should be considered in order to ensure the correct and safe application of the system. Overall, avoid extreme cold or hot surface conditions. In case of high heat, contractors may apply the products either in the morning or afternoon. The application temperature range is 5°C to 35°C, with no dew point conditions, a maximum 95% relative humidity, and substrate temperature above 3°C. Store materials cool, tools dry, and avoid application during hot hours.

Substrate: To ensure successful application, substrate preparation is crucial. New concrete should be at least 28 days old, clean, dry, and free of substances that could reduce adhesion. Dust removal is recommended, and Alchimica's primer application can be done over damp concrete.

In case of doubtful conditions, please contact ALCHIMICA's technical assistance for instructions.

REPAIR AND LEVELING MORTARS

REPAIRING

In case any spots on the concrete surface require repairs, filling, and/or smoothing such as large cracks, cavities, or surface levelling, ALCHIMICA's HYGROSMART® range of cementitious mortars may be used:

1. **HYGROSMART®-FIX&FINISH** (Single component, rapid-setting shrinkage-compensated, thixotropic, fiber-reinforced, cementitious mortar applied in a single layer from 3 to 40 mm thick, for repairing and smoothing concrete, certified according to EN1504-03, Type R4 CLASS III), or
2. **HYGROSMART®-BUILDING-45-THIXO** (Single-component, shrinkage-compensated, thixotropic, fiber-reinforced cementitious repair mortar, certified according to EN1504-03, Type R4 CLASS III), or
3. **HYGROSMART®-BUILDING-F** (Single-component, reinforced, quick-setting, cementitious repair mortar with excellent adhesion and mechanical properties, easy application in horizontal/vertical substrates. Long pot life allows the application of thick coats without cracking. CE Certified as Class R3 class III repair mortar according to EN 1504-03.
4. **HYGROSMART®-MAK-FLOW** (Single-component, highly flowable and shrinkage compensated mortar for structural repairs and anchoring, certified according to EN 1504-6: 2006 (Anchoring cementitious mortar for strengthening

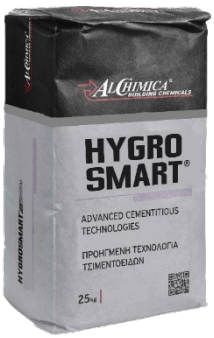
HYGRO SMART® SYSTEM Advanced Cementitious Technologies

ALCHIMICA® BUILDING CHEMICALS

concrete by installing reinforcing steel) and EN 1504-3: 2005, Class R4(Hydraulic mortar (R4-CC) for structural repair of concrete in building and civil engineering works).

LEVELING

In cases where the concrete needs to be levelled or slopes need to be created prior to the installation of the waterproofing membrane, the following products from the HYGROSMART® range can be used, depending on the requirements and desired outcome.



1. **HYGROSMART®-MAK FLOW** (as described above)
2. **HYGROSMART® -DUR CEM 3K** (Three-component, epoxy modified mortar, waterborne, solvent-free, low viscosity, self-levelling, quick curing, zero VOC. Primer for flooring and waterproofing applications, floor-levelling compound. Will effectively seal the substrate as a solution to the problems arising in waterproofing applications on porous and/or humid concrete. The material is available as SELF LEVELLING (**HYGROSMART®-DUR CEM 3K SL**) or THIXOTROPIC (**HYGROSMART®-DUR CEM 3K THIXO**).

PRIMER SELECTION

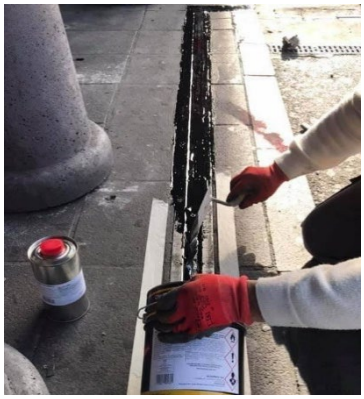
After checking the weather conditions and having completed the substrate preparation along with any repairs that might be needed, you can start the waterproofing system's build-up with the selection of a suitable primer. ALCHIMICA's primer range provides unique properties for different substrates.

SUBSTRATE AND CONDITIONS	CONCRETE	HUMID CONCRETE	GYPSUM	METAL STEEL	POROUS CERAMIC TILES	GLASS / GLAZY TILES	PVC MEMBRANES	TPO MEMBRANES	BITUMEN MEMBRANES	LOW TEMPERATURE APPLICATION	VAPOR BARRIER	NEGATIVE PRESSURE / RISING HUMIDITY (1atm.)
PU PRIMERS												
PRIMER-PU	X	-	-	X	-	-	-	-	-	-	-	-
MICROPRIMER-PU	X	-	-	X	X	-	-	-	-	-	-	-
MICROSEALER-PU	X	X	X	X	X	-	-	-	-	-	-	-
MICROSEALER-50	X	X	X	X	X	-	-	-	-	-	-	-
GEODESMO 50	X	X	-	X	-	-	-	-	-	X	-	-
UNIVERSAL PRIMER-2K 4060	X	X	-	-	-	-	-	-	X	X	-	-
PRIMER T	-	-	-	-	-	X	-	-	-	-	-	-
PRIMER W	-	-	-	-	-	X	-	-	-	-	-	-
PRIMER TPO/FPO	-	-	-	-	-	-	-	X	-	-	-	-
PRIMER PVC	-	-	-	-	-	-	X	-	-	-	-	-
WATER-BASED PRIMERS												
AQUADUR	X	X	X	-	-	-	-	-	-	-	X	X
AQUASMART-DUR	X	X	X	-	-	-	-	-	-	-	X	X
AQUASMART-PRIMER PU-2K	X	X	-	-	-	-	-	-	-	X	-	-

ALCHIMICA's primers are designed to secure your waterproofing application in every substrate by strengthening the substrate, stabilizing, and sealing it, offering remarkable adhesion with their respective main membranes and sealants.

SEALING SOLUTIONS

Dilatation joints and inner angles should NOT be treated with a polyurethane-based sealant if bitumen-based materials are used or exist. Bitumen-based materials and polyurethane-based sealants are not compatible if in contact directly. The chemical properties of these materials can react negatively when they come into contact, potentially causing degradation or failure of the sealant. Flashing points, surface irregularities, cracks, and details can be repaired using HYPERDESMO® PB-1K. Dilatation joints and large cracks should be treated with HYPERDESMO®-PB-1K or with HYPERDESMO®-PB-2K.



VERTICAL AND HORIZONTAL AREAS CAN BE TREATED WITH HYPERDESMO®-PB-1K.

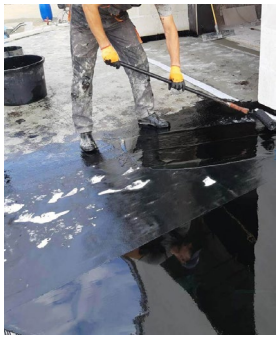
HYPERDESMO®-PB-1K is a quick-curing, one component, thixotropic, bitumen-extended polyurethane fluid for flashing, waterproofing and protection. It produces a hydrophobic, elastic membrane with very strong adhesion to most types of substrates while offering excellent mechanical and chemical resistance properties. It is ideal for application on vertical surfaces: no running, no bubbling. It is based on pure elastomeric hydrophobic polyurethane resin and is extended with chemically polymerised virgin bitumen. Also, you can reinforce the joints and cracks with geotextile stripes and HYPERDESMO®-PB-1K applied wet-on-wet, allowing it to form a composite layer that offers additional protection from future cracking at these vulnerable points.

The material does not require thinning, but SOLVENT-01 may be used if needed. HYPERDESMO®-PB-1K has excellent thermal resistance and never turns soft, with a maximum service temperature of 80°C and a maximum shock temperature of 150°C. It

also has outstanding mechanical properties, including high elongation, tensile and tear strength, and high abrasion resistance. The material has excellent chemical resistance and is an effective humidity barrier.

HORIZONTAL AREAS CAN BE TREATED WITH HYPERDESMO®-PB-2K.

HYPERDESMO®-PB-2K stands out not only as a waterproofing membrane but also as an exceptionally effective sealant for joints, cracks, detailed areas, and especially large areas thanks to its versatile and resilient properties. This two-component, bitumen-extended polyurethane product creates a highly elastic membrane that excels in sealing and bridging gaps, even in areas that experience significant movement or vibration. Its superior adhesion capabilities ensure a strong bond to a variety of substrates including concrete, asphalt, and metal, which is critical for long-term durability and integrity of the seal. Additionally, HYPERDESMO®-PB-2K cures quickly, reducing wait times and accelerating project timelines. The material is also capable of withstanding extreme temperatures and environmental conditions without degradation, making it an ideal choice for both indoor and outdoor applications where reliability is paramount.



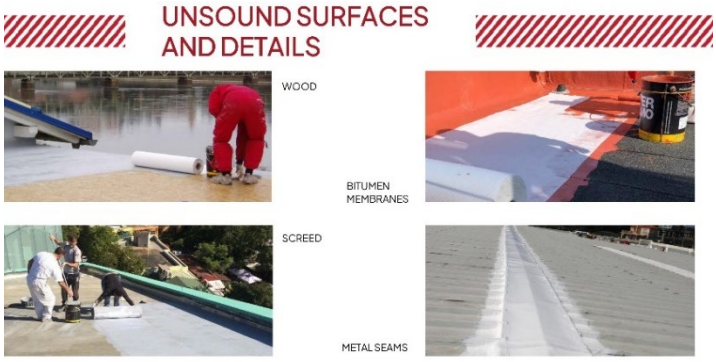
Treating joints, cracks, and detailed areas under the main waterproofing membrane with HYPERDESMO®-PB-2K is crucial for ensuring the integrity and longevity of waterproofing systems. Proper treatment of these vulnerable points with HYPERDESMO®-PB-2K before applying the main waterproofing layer is essential to prevent water ingress and structural damage.

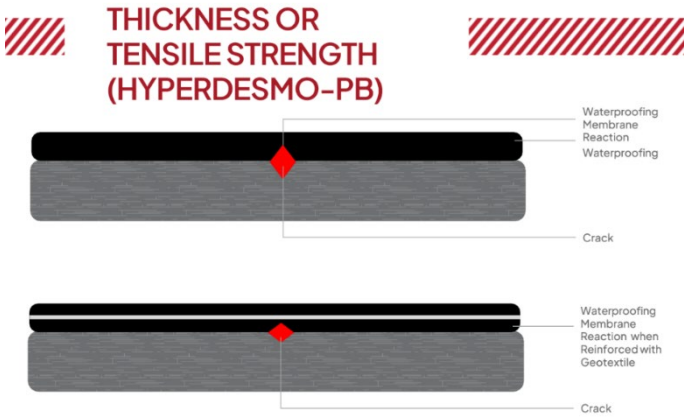
HYPERDESMO®-PB-2K is a two-component waterproofing system that leverages a reaction curing process, allowing for a single-coat application to achieve the desired total thickness. This method ensures strong adhesion, making it ideal for seamless waterproofing. To ensure maximum compatibility and adhesion, particularly when HYPERDESMO®-PB-2K is used both for sealing and as the primary waterproofing layer, the application should follow a "wet-on-wet" method. Start by treating the joints and angles, then immediately proceed with the main waterproofing application while

the HYPERDESMO®-PB-2K is still wet. This approach creates a seamless bond between layers, ensuring secure adhesion. The product's self-leveling properties and ability to be applied in full thickness with a single coat, using a notched trowel, squeegee,or roller, offer strong protection. This reduces the risk of leaks and guarantees the seamless bond that preserves the structural integrity and protection of the building.

REINFORCEMENT OF WATERPROOFING MEMBRANES WITH GEOTEXTILE

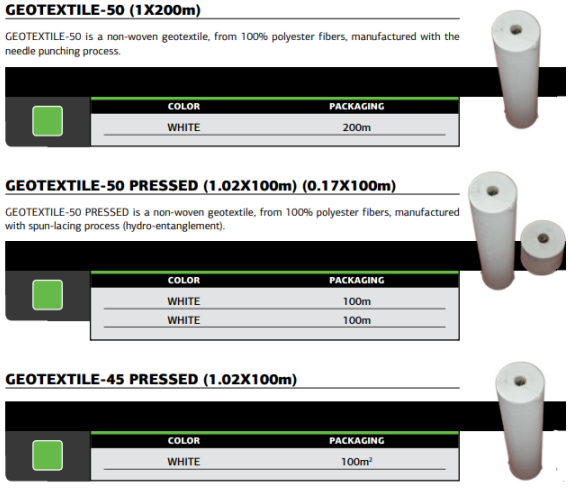
Geotextile reinforcement is a crucial component in the construction industry, providing long-term protective solutions for waterproofing systems. These fabric-made sheets are used in various applications, including drainage and construction projects. They are divided into two categories: non-woven and woven geotextiles. Woven geotextiles have high load capacity and tensile strength, making them ideal for stabilization and reinforcement applications. Non-woven geotextiles, on the other hand, offer durability and ease of application benefits. Nonwoven geotextiles are manufactured by binding short and long fibers together through needle punching or other alternative methods. The term "pressed" in relation to non-woven geotextiles usually refers to the process of needle punching. In this context, "pressed" refers to a non-woven geotextile that has undergone the needle punching process, while "unpressed" usually refers to a non-woven geotextile before this process. The needle-punching process can improve the strength of the geotextile. For cold climatic conditions, it is recommended to choose the PRESSED geotextile.





Geotextiles protect and separate membranes from structures due to their higher pre-break elongation capacity than other materials like glass mesh or fiberglass mesh. They can follow the movement of elastomeric waterproofing materials, achieving reinforcement and long-term durability. However, unsound substrates often have high movement or large cracks, which can cause problems on unarmed waterproofing membranes. Geotextiles can prevent future cracks by sealing and protecting details in areas like roofs, flashing, and joints, and repairing existing cracks and gaps. They are often made of Polyester, which is a strong fiber with excellent oxidation resistance and good mechanical stability. It offers strong oxidation or mildew resistance because it stays resilient when wet. It is used as a reinforcement material embedded between the waterproofing coats, so it does not have direct exposure to the conditions. in this case, any resistance concerns those materials that are in direct contact with the environment and conditions. The HYPERDESMO® and HYPERDESMO®-PB System remains elastic at -40°C. Another very important advantage of our materials that are in the technology of liquid polyurethane waterproofing membranes is the fact that they can easily be reinforced with geotextile if needed.

ALCHIMICA offers a high-tensile strength range of non-woven geotextiles made of 100% polyester fibers, manufactured with the needle punching process. They can be applied on the full surface between the first two layers of the HYPERDESMO®-PB System, providing the required reinforcement for certain applications, such as over old bitumen membranes and unsound screeds. They are suitable for solvent-based or water-based liquid waterproofing systems.



METHOD STATEMENT

GREEN WALL WATERPROOFING BASED ON THE HYPERDESMO®-PB SYSTEM

A green wall enhances the sustainability of a building and offers numerous benefits to urban environments. Our bitumen extended PU products, HYPERDESMO®-PB, provide unmatched performance ensuring that green walls can enhance buildings aesthetically without any waterproofing issues. One of the key advantages of this system is its versatility; it is not limited to green walls but can also be applied to any vertical surfaces intended for planting, such as green facades and vertical gardens. This flexibility allows for a comprehensive application across various structural elements, promoting greener urban spaces effectively.

The key advantage of ALCHIMICA's green wall waterproofing system is that it can be implemented as the outermost layer of the existing facade system. Whether the wall structure includes thermal insulation or not, it is unaffected by the waterproofing system, as both components work synergistically. The Alchimica system serves as the final layer of the wall construction, acting as a barrier against moisture from the plants. The next layers in the setup are the drainage system and the planting, which are determined by the professional planter. This arrangement ensures that the structural integrity and aesthetic appeal of the building are maintained while providing effective moisture management for the green wall.

GENERAL SYSTEM CONDITIONS

EQUIPMENT

For successful and safe applications specific tools and equipment are required. Each application might have different requirements in terms of application and protection equipment.

The following application equipment is at minimum required:

- Protective clothing: Protective overalls, masks, and gloves.
- Mixing equipment: 1KW slow speed drill, 400 or 500 rpm, and suitably sized mixing vessel.

- When stirring (or pigmenting) take care not to introduce air into the fluid, which may result in bubbling on the cured membrane. Stirring can either be done manually or with a low speed (300 rpm) mixer.
- Application equipment: Brush, roller, notched trowel, squeegee, rubber spatula, caulking gun, spatula. Specific airless spray machines can also be used. Caulking guns.
- Extra equipment: Digital scale or other measuring equipment

Products can be applied with a variety of equipment. Please choose the desired equipment and method of application according to your preferences and experience after consulting the proposed method of application on TDS of the Product.

APPLICATION WITH AIRLESS SPRAY MACHINE.

For the application of ALCHIMICA's liquid applied PU systems we recommend the following minimum performance for the equipment to be used. This however it is not exclusive, as applicators should use our products with the equipment that is more suitable according to their application method, prior experience, and expertise:

- Minimum pressure: around 200-250 bar
- Minimum capacity: 5.1 lt/minute
- Minimum nozzle diameter: 0.83mm (0.033 inches)
- Examples of such minimum-spec equipment:
  - ✓ *Wagner Heavycoat HC 940 E-SSP Spraypack*
  - ✓ *Graco Mark-X*
  - ✓ *Larius Thor*
  - ✓

Use clean equipment when switching from different products, to prevent contamination between different products.

DISCLAIMER: IMPORTANCE OF EQUIPMENT CLEANING

To maintain the integrity and efficacy of products, especially when working with liquid chemicals, it is crucial to use equipment that is thoroughly cleaned prior to use. Residual chemicals on containers, mixers, or other tools can initiate unintended chemical reactions or cause contamination **when switching between different products**. Such occurrences may lead to product degradation, and project failure. Adherence to rigorous cleaning protocols is essential to prevent these risks. All users

must strictly follow the equipment cleaning guidelines specified herein to ensure product performance and project success.

WORKING WEATHER CONDITIONS

- Application temperature range: 5°C to 35°C.
- Avoid dew point conditions during application.
- Relative humidity must be a maximum of 95% and substrate temperature must be at least 3°C above measured dew point temperatures.
- Do not apply under rain or snow.
- If temperature is above 35°C, the following guidelines are recommended:
    - Store materials in a cool environment, avoiding exposure to direct sunlight.
    - Keep application tools cool and dry.
    - Try to avoid application during the hottest hours of the day.

SURFACE PREPARATION

THE FOLLOWING FACTORS PRIOR TO APPLICATION SHOULD BE CHECKED:

- ✓ Substrate type and condition.
- ✓ Previous substrate mechanical preparations (sanding, polishing, shot blasting, or milling)
- ✓ Porosity of the surface
- ✓ Existing cracks or damaged areas.
- ✓ In existing dilatation joints, remove old material and clean it.
- ✓ Existing membranes or coatings.
- ✓ The substrates must be both durable and cohesive. Check the substrate for contamination (oil, grease, etc.).

CONCRETE SUBSTRATES

Concrete substrates are used in the construction of roofs and foundations in modern architectural designs. However, because concrete is a porous surface exposed to different climatic conditions, it can absorb water which can then cause damage. Waterproofing is a basic need at almost all stages of construction work, in order to protect structures from the adverse effects of moisture and water ingress. In the case

of exposed concrete roofs, it is vital to avoid any water leak in order to prevent any wear and corrosion of reinforcing steel in the concrete structure.

ALCHIMICA's high-quality concrete roof waterproofing and protection systems consist of quality products that hold excellent workability, durability, elasticity, and resistance to weather, chemical, mechanical, and thermal effects, as well as to UV radiation on either flat or sloping

Standard concrete substrate conditions
- Hardness: R28 = 15 MPa.
- Humidity: W < 10%.
- Temperature: 5-35 °C.
- Relative humidity: < 85%

PREPARATION

Proper preparation of the concrete substrate is essential for complete adhesion and successful application.

- New concrete or other cementitious substrates should be at least 28 days old.
- The substrate should be clean and free of loose particles, oil, and grease.
- The substrate should be free of any irregularities. If needed, it should be ground with the appropriate mechanical equipment in order to achieve a flat and sound surface.
- The substrate should be free of dust. Vacuum treatment or/ and high-pressure washing is recommended to remove dust.
- Primer application can be done over damp concrete too. But any ponding water should be removed before primer application.
- Metal details should be free of rust, oils, and old paints.
- The surface of PVC pipes should be treated with sandpaper in order to become rough.
- Surface irregularities can be filled with the appropriate HYGROSMART® products.
- For concrete levelling or sloping the appropriate HYGROSMART® products must be used.
- For more information about surface preparation please contact our technical assistance team.

MANDATORY DISCLAIMER BEFORE APPLICATION:

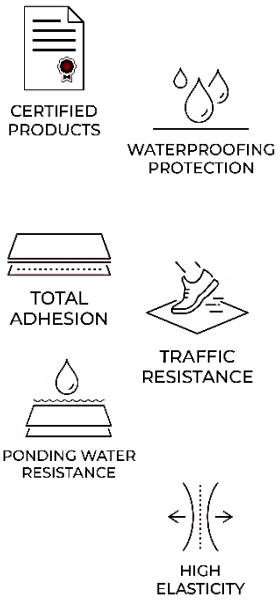
Testing the products to be used in this build-up application on the specific substrate and conducting mock-up tests are essential steps to ensure good adhesion. Mock-up tests replicate real-world conditions and provide a practical way to evaluate the performance of the products in situ. Pull-out tests conducted on these mock-ups help assess the bond strength between the products and the substrate, giving valuable insights into their adhesion capabilities.

By testing the products on the specific substrate and conducting mock-up tests, any potential issues or concerns regarding adhesion can be identified and addressed before full-scale implementation. This proactive approach helps mitigate risks associated with poor adhesion, ensuring the long-term durability and effectiveness of the build-up system.

ALCHIMICA advises the thorough testing of the system to be performed prior to proceeding with full surface application in order to determine the suitability of the system based on project requirements.

SYSTEM PRODUCTS BUILD-UP

	PRODUCT	CONSUMPTION
1. PRIMER	AQUASMART-DUR MICROSEALER-50 GEODESMO-50	200-400 gr/m² Subject to porosity
2. DETAILS TREATMENT	HYPERDESMO®-PB-1K	Subject to project needs
3. MAIN MEMBRANE	HYPERDESMO®-PB-1K-FC	Total consumption: 1.5-2 kg/m²
4. PROTECTION GEOTEXTILE	GEOTEXTILE-45/50 PRESSED	Subject to project needs
	DRAINING SYSTEM & PLANTS	



SUBSTRATE PRIMING

PRIMER	AQUASMART-DUR / AQUADUR	MICROSEALER-50	GEODESMO-50
CONSUMPTION	- 150-200 gr/m² - water/humidity barrier –three coats with total cons. of 500-600 gr/m²	- 150-200 gr/m² per coat - 100-300 gr/m², subject to substrate porosity	- 150-200 gr/m² per coat - 100-500 gr/m², subject to substrate porosity.
COMPOSITION	WATER BASED EPOXY	SOLVENT-BASED PU	SOLVENT-BASED PU
APPLICATIONS METHODS	brush, roller	brush, roller	brush, roller
TACK FREE TIME, @ 77 °F (25°C) & 55% RH	3-5 Hours	6-12 Hours	1-3 Hours
RECOAT TIME OF PRODUCT WHEN NEEDED	When the material has hardened to the degree where it can no longer be punctured by fingernail 6-24 Hours	6-12 Hours	1-3 Hours
NEXT COAT TIME (HYPERDESMO® MEMBRANE)	Once the colour on the current coat goes from milky white to transparent 6-24 Hours	12-24 Hours	2-24 Hours
RECOMMENDED DILUTION	10% WATER	X	X
ADDITIVES	X	X	X
COLORS	TRANSPARENT	TRANSPARENT	TRANSPARENT
POT LIFE	1 Hour	X	X
COMPONENTS	TWO COMPONENTS	SINGLE COMPONENT	SINGLE COMPONENT

Choose a suitable primer for your project needs and requirements:

■ AQUASMART-DUR is a medium viscosity epoxy-based primer. It is a water-based epoxy primer and humidity barrier, suitable for application in closed spaces too. It is a two-component product with a 1:1 mixing ratio by volume with zero VOC, low odor, and non-flammability. It has a long pot life while being fast curing, easy to clean, and suitable for concrete and humid concrete too.

Mixing: Mix the two components well manually or using a low speed (300 rpm) mixer.

Application: You choose to apply this primer over a sound concrete surface. AQUASMART-DUR primer will create a slight film sealing the concrete and increasing the adhesion. After the AQUASMART-DUR application, you should wait at least 12 hours to apply the main membrane. The main membrane application has to be done within 48 hours after the AQUASMART-DUR application. AQUASMART-DUR is completely solvent-free and low VOC primer. If a negative pressure humidity barrier is required, increase total consumption of AQUASMART-DUR at a minimum of 500 gr/m² in 3 successive layers (150-200gr/m² per coat)

■ MICROSEALER-50 is a polyurethane based primer/concrete sealer suitable for both porous and non-porous substrates. It is a single component with low viscosity, deep penetration, and slow cure, offering excellent wetting, impregnation, and paint-over time on various substrates. It seals and stabilizes substrates, ensuring good adhesion of the main coat. It is suitable for concrete, humid concrete, metal/steel, porous ceramic tiles, and gypsum boards.

Mixing: Mix the product well manually or using a low speed (300 rpm) mixer.

Application: You choose this primer if your concrete surface is porous. MICROSEALER-50 primer will penetrate, stabilize, and seal the concrete surface in depth. After MICROSEALER-50 application you should wait at least 12 hours in order to apply the main membrane. Apply the main membrane within a maximum of 3 days after primer application.

■GEODESMO-50 is a low viscosity, fast curing, polyurethane based primer. Its fast-curing profile makes it suitable for colder climates and unpredictable rain. It is a single component with excellent wetting, impregnation, and paint-over time properties. It is used for sealing and stabilizing substrates, ensuring good adhesion of the main coat. GEODESMO-50 is the faster curing version of MICROSEALER-50 and is ideal for extreme porosity in concrete surfaces where multiple coats of primer may be required. It can be used on both dry and wet concrete, even green concrete, as a primer and low-cost sealing solution, increasing substrate durability and adhesion strength. It can be used successfully on both porous and non-porous substrates.

Mixing: Mix the product well manually or using a low speed (300 rpm) mixer.

Application: You choose this primer if the concrete surface is extremely porous. GEODESMO-50 has a very fast curing profile (same-day primer), which allows it to be used more successfully in colder climates and when rain is not very predictable because 2-3 hours after this primer application, you can apply the main membrane. Although the material has such a fast-curing profile, it has a good memory also. Application over it, is possible even the next day and up to 48 hours.

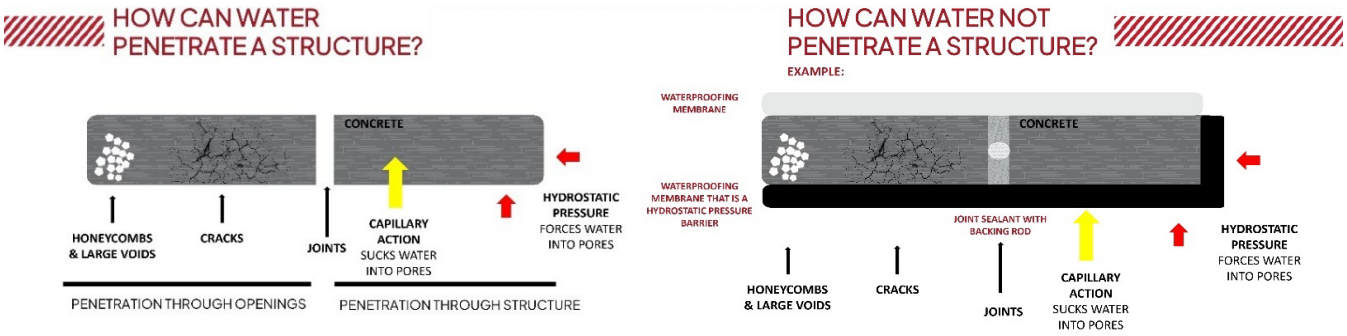
Notes:

1. If it rains after the primer and before the main coat application, you may need to apply one coat of primer again.
2. More primers are available for special cases, surfaces, and weather conditions.
3. For more information about surface preparation please contact our technical assistance team.

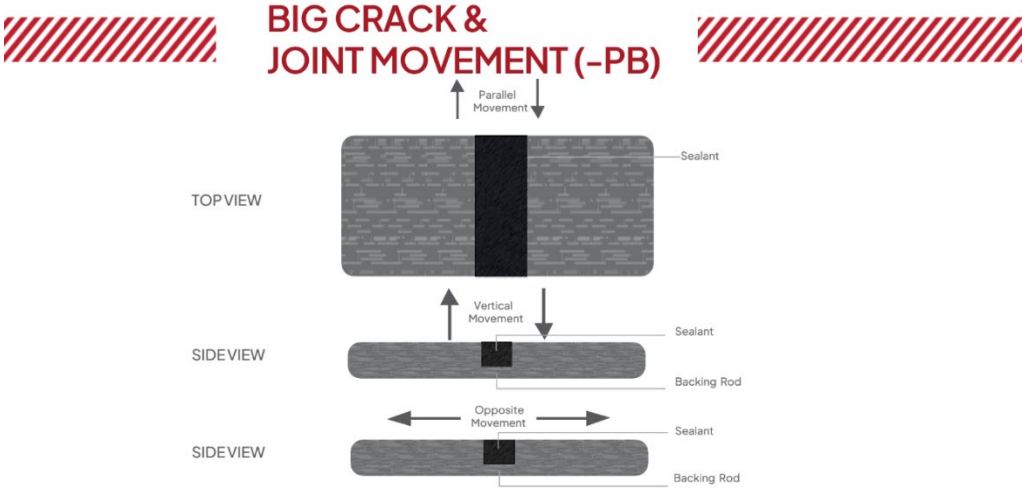
DILATATION JOINTS, INNER ANGLES & SMALL CRACKS

Concrete expansion joints are vital components in the structure of green walls, where they help prevent cracks by absorbing stresses and accommodating soil movement. These joints facilitate independent movement and thermal expansion, essential in preventing stress-induced damage in the non-elastic concrete. To ensure the functionality and longevity of green walls, it's crucial to strategically place these joints to ward off structural failure.

However, green walls with expansion joints are prone to water leaks, making effective waterproofing and the application of a durable sealant crucial. This treatment helps maintain the flexibility of the joints and ensures they function as intended. In green wall systems, it is particularly important to address all dilatation joints, inner angles, and connections between walls and floors, along with any cracks and drainage details. Additionally, pipes and other mechanical installations, such as irrigation systems, must be meticulously waterproofed to prevent moisture infiltration and ensure the overall health and stability of the green wall.



Clean joints thoroughly, and ensure that no dust, oil, grease, wax contaminants, or silicone remains are present. While a primer may not always be necessary in details treatment, it becomes essential on porous or wet substrates to prevent air bubbles from



forming due to rising substrate temperatures. Once the primer has cured, apply HYPERDESMO-PB-1K. Apply HYPERDESMO®-PB-1K locally over any cracks larger than 1 mm before the main coat.

HYPERDESMO®-PB-1K

Teat joints, small cracks and details with HYPERDESMO®-PB-1K using a brush or small roller. For reinforcement then apply a piece of GEOTEXTILE (strips 0.17x100m, non-woven geotextile of 50-100gr/m^2) cut in proper size, wet on wet, for better protection from cracks in these specific points, if movement happens in the future. Immediately, cover the details areas with the sufficient consumption of

HYPERDESMO®-PB-1K to cover completely the GEOTEXTILE. If an anti-slippery effect is required, natural dry quartz sand can be broadcasted over the fresh coat. Remove any excess sand with a vacuum.




MAIN WATERPROOFING MEMBRANE

	HYPERDESMO-PB-1K-FC
CONSUMPTION	1,5 -2 kg/m²
APPLICATION AREA	VERTICAL & HORIZONTAL
APPLICATIONS METHODS	notched trowel, squeegee, roller, or airless spray machine

TACK FREE TIME, @ 77 °F (25°C) & 55% RH	1-2 Hours
APPLICATION OVER PREVIOUS COAT (PRIMER)	Depending on the primer curing time
RECOAT TIME	6-24 Hours
COLORS	BLACK
POT LIFE	-
COMPONENTS	SINGLE COMPONENT

HYPERDESMO®-PB-1K FC is an advanced waterproofing solution for non-exposed applications, such as foundation wall and slab waterproofing, below ground projects and green systems such as green walls. This fast-curing, one-component bitumen-extended polyurethane liquid membrane is formulated to deliver superior performance in challenging underground environments. Its thixotropic properties ensure a thick, non-sag consistency, making it ideal for vertical, inclined, and overhead surfaces where traditional liquid membranes struggle.

The membrane is based on pure elastomeric hydrophobic polyurethane resin extended with chemically polymerized virgin bitumen. This unique composition ensures excellent adhesion to a wide variety of substrates and enables it to cure rapidly without bubbling, even under high temperatures and humidity. These features make HYPERDESMO®-PB-1K FC highly effective in maintaining integrity and flexibility under extreme conditions. CE certified under EN 1504-2:2004 and designed for efficiency, HYPERDESMO®-PB-1K FC remains elastic at temperatures as low as -40°C and withstands maximum service temperatures of up to 80°C and shock temperatures of 150°C. It exhibits outstanding mechanical properties, including high elongation, tensile and tear strength, and excellent abrasion resistance. Furthermore, its chemical resistance and effective humidity barrier capabilities provide robust, long-lasting protection against moisture and environmental stressors.

Application is straightforward and versatile, allowing use with a brush, spatula, or airless spray. The recommended total consumption is 1.5-2.0 kg/m², applied in two coats. HYPERDESMO®-PB-1K FC is recognized worldwide for its combination of rapid curing, minimal bubbling formation, and exceptional adhesion properties makes it an ideal choice for any vertical non exposed waterproofing, such as green walls and below-ground waterproofing projects.

APPLICATION BY COATS	- First coat: 0.7-0.9 kg/m². - Second coat: 0.8-0.9 kg/m². Apply more coats depending on traffic requirements and system build-up. - Minimum total consumption: 1.5-2 kg/m².
APPLICATION WITH AIRLESS (200- 250 bar) SPRAY MACHINE.	1. Open the pail and stir it up to homogenize. 2. If necessary, add 5~10% SOLVENT-01 into the pail and mix it with medium-speed mechanical equipment. 3. Apply thin layers using an airless spray machine. 4. Wait for the recoat time. 5. Repeat this process until the desired or recommended thickness.

DRAINING SYSTEM, SOIL & VEGETATION

For the selection of the appropriate soil, planting system, and drainage system, as well as the choice of plants to be used in the project, please consult an agronomist or the responsible greening project manager. It is crucial to choose the right materials and plants to ensure the healthy growth of vegetation and the long-term sustainability of the construction. A specialist can guide you correctly to avoid issues such as excessive moisture or inadequate drainage and to ensure that the green cover thrives optimally. The purpose of this booklet is to address the waterproofing aspects of the project.

CLEANING

Clean tools and equipment first with paper towels. Tools and equipment should be cleaned immediately using SOLVENT-01 (or water for water-based materials). Rollers will not be re-usable.

REPAIR AND OVERLAPS PROCESSES

LOCAL REPAIRS

One of the benefits of ALCHIMICA's liquid applied waterproofing systems is the ease of reparations to be carried out when spot problems occur. Nevertheless, it is always recommended to protect the membrane by ensuring that there are no foreign objects, sharp and heavy ones mostly, that they could fall and damage the membrane, to the best possible extent.

In cases where the membrane repair is caused by an accident or assembly procedures that are not covered by the installation, the following procedures must be followed:

- Grind the affected areas or remove the affected area and/or damaged surface by cutting.
- Sanding this area for overlapping, extending it about 20-30 cm around the perimeter.
- Clean the surface around the slit at a perimeter of 20-30cm depending on the repair length. Clean up thoroughly and remove all contaminants from the elements, such as dust or chippings, by mopping and/or vacuuming.
- If necessary, solvent wipe the area with a SOLVENT-01. Allow it to dry completely. The surface must be completely dry before the next steps.
- Apply a thin layer of primer UNIVERSAL-PRIMER-2K-4060 at a consumption of 50-60gr/m^2 by overlapping the membrane at the prementioned perimeter.
- Fill the area by using HYPERDESMO®-PB-1K, tool it to form a smooth patch.
- In severe situations, the coating may have to be totally removed prior to system re-application.

OVERLAPS

In cases where the recoat time (24-48 hours) has been exceeded, the waiting time between jobs has been extended, or unexpected weather conditions (rain) have stopped the application, proceed as follows:
The HYPERDESMO®-PB SURFACE should be clean and free of loose particles and dust. If it rains after the first main coat application, you may need to solvent wipe the area and apply one thin coat of primer again.

- OPTION 1: clean the area and apply primer MICROSEALER-50 at the consumption of 50-80gr/m^2 in order to secure adhesion. After 6-12h you can apply the next coat of HYPERDESMO®-PB
- OPTION 2: solvent wipe the whole area with SOLVENT-01, let it dry, and then apply HYPERDESMO®-PB.

When overlapping layers of HYPERDESMO®-PB-2K, ensure that the application is done while the existing layer is still tacky, within a maximum window of 2 hours. This

will ensure a secure bond between layers for a seamless, effective waterproofing system.

REFERENCES

ALCHIMICA throughout the years, has a collection of completed projects from around the world. On our website, you can find where we have provided a variety of solutions and expert know-how, in case studies ranging from the smallest roof to the largest project. www.alchimica.com

GREEN SYSTEMS ALL OVER THE WORLD

HEALTH AND SAFETY

The system proposal contains volatile flammable solvents. Apply in well-ventilated, no-smoking areas, away from naked flames. In closed spaces use ventilators and carbon-active masks. Keep in mind that solvents are heavier than air, so they float near the floor. The MSDS (Material Safety Data Sheet) of the products are available on request.

This handling safety advice is required for the implementation procedure as well as in the pre- and post-exposure to the loading machinery.

- Protect your lungs by using an air-purifying respirator when handling or spraying.
- Use rubber gloves to protect your skin and remove them promptly after contamination. Wear clean undergarments. After work and before eating, drinking, or smoking, thoroughly wash your hands with soap and water.
- Wear safety goggles to protect your eyes and face from splashes and airborne particles.
- Waste generation should be avoided or reduced.
- Incinerate under well-controlled conditions in line with local and national rules and regulations.
- Re-occupancy of the work site without respiratory equipment is limited to 24 hours if proper ventilation for the sprayed area is provided.
- Contractors and applicators must follow all applicable and necessary storage and safety regulations.
- In any case, review the system's material and safety data sheets.

PRECAUTIONS AND VARIATIONS.

The purchaser must determine the suitability of the products for the intended use and assume all related liabilities and risks. This information, recommendations, and any additional technical advice are given in good faith and are based on ALCHIMICA's present knowledge and experience of the products when properly stored, handled, and applied under normal conditions according to ALCHIMICA's recommendations.

However, ALCHIMICA assumes no liability for providing such information and advice including the extent to which such information and advice may relate to existing third-party intellectual property rights, especially patent rights, nor shall any legal relationship be created by or arise from the provision of such information and advice. ALCHIMICA reserves the right to change at any time the properties of its products. The purchaser of the product(s) must test the product(s) suitability for the intended application and purpose before proceeding with a full application of the product(s).

The performance of the products build up described herein should be verified by testing and carried out by qualified experts.

NOTE: This method statement is offered by ALCHIMICA as a 'summary proposal' for GREEN WALL BASED ON HYPERDESMO®-PB SYSTEM. For projects' particularities and more precise technical support, please contact ALCHIMICA at: alchimica@alchimica.com

Please consult the above-referred products' technical data sheets (TDS) and safety data sheets (SDS). Under any circumstances, ALCHIMICA does not assume any responsibility for the performance of the waterproofing system given the conceptual flaws of the existing build-up. Imperative for the performance of the system is the correct cleaning, inspection, and maintenance of the waterproofing system. For projects' particularities and more precise technical support, please contact ALCHIMICA at: alchimica@alchimica.com

Where alternative systems are to be used, these must be submitted to ALCHIMICA for approval. ALCHIMICA will not accept responsibility or liability for variations to the above under any other condition.

LEGAL NOTES AND CITATION

- This is a technical document, without legal value.

- No liability or warranty of product performance is created by this document.
- All the information included is collected from materials TDS, DoP, and certificates available at the moment of publishing.
- ALCHIMICA S.A. does not guarantee the accuracy of its instructions or specifications, nor do we assume any responsibility for damages resulting from the use or reference of the information provided. The company reserves the right to change the properties of its products at any time, and the current version of the technical data sheet is available on the website www.alchimica.com/en
- Appropriate Technical Documentation and/or Specific Technical Documentation: The performance of the products identified in the DoP files conform with the set of declared performances. This declaration of performance is issued in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer.
- It is recommended to check the TDS and MSDS of all the materials before use and application.

- The use of these materials and products is beyond the scope and control of ALCHIMICA.
- Proper application is the responsibility of the Buyer and/or Contractor.

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