BITUMEN MEMBRANE REFURBISHMENT AND PROTECTION BASED ON HYPERDESMO®-ADY-610/810.

ALCHIMICA® BUILDING CHEMICALS

TABLE OF CONTENTS

REFURBISHING OLD BITUMEN MEMBRANES WITH ALCHIMICA'S HYPERDESMO® WATERPROOFING MEMBRANES: A SMART, SUSTAINABLE CHOICE

Roof maintenance is an essential aspect of building management. The decision between refurbishing an existing membrane and replacing it can be influenced by several factors, including cost, disruption, and environmental impact. For old bitumen membranes, especially those that are still in acceptable condition but showing signs of wear, advancements in roofing technology like ALCHIMICA's HYPERDESMO® waterproofing membranes provide compelling reasons to opt for refurbishment over replacement. When bitumen membranes on concrete

roofs begin to deteriorate, showing signs of water infiltration and other damage, it's crucial to address these issues promptly. ALCHIMICA's HYPERDESMO® waterproofing membranes offers a seamless and durable solution for refurbishing and protecting these membranes. It ensures high-quality waterproofing while being remarkably easy to apply, making it the least invasive option available for older roofs.

One of the primary benefits of refurbishing the HYPERDESMO® waterproofing membranes over complete replacement is the significant cost reduction. Total replacement not only involves the expense of new materials but also the extensive labor required to remove old membranes and install new ones. The HYPERDESMO® waterproofing membranes, applied as a liquid membrane directly over the existing substrate, drastically cuts down on both material and labor costs. This method not only extends the life of the current membrane but also defers the need for a full replacement, allowing for better financial planning and resource allocation.

Replacing a roof is typically a disruptive process, involving noisy and cumbersome construction activities that can affect the daily operations within a building. The HYPERDESMO® waterproofing membranes application process is far less intrusive, allowing businesses to operate without significant interruptions. This is particularly beneficial in settings where continuous operation is critical. Roof replacement produces a considerable amount of waste, which typically ends up in landfills. In contrast, refurbishing retains

the existing membrane, substantially reducing waste. Additionally, the production and transportation of new roofing materials consume energy and generate emissions. By opting for refurbishment with the HYPERDESMO® waterproofing membranes, these environmental impacts are minimized, supporting more sustainable construction practices. Therefore, the process of removing and replacing a roof involves risks, including heavy lifting and exposure to old construction materials at significant heights. The HYPERDESMO®-ADY-610/810 refurbishment process is inherently safer, requiring less manual labor and presenting fewer risks to workers. Moreover, this system allows for upgrades to comply with current building codes and environmental standards, integrating modern roofing technology with existing structures and enhancing the building's resilience against environmental conditions.

Refurbishment materials like the HYPERDESMO®-ADY-610/810 often feature energy-efficient properties, such as reflective surfaces that reduce heat absorption, thereby decreasing cooling costs. This improves the insulation characteristics of the roof, enhancing overall energy efficiency, reducing utility bills, and minimizing the building's carbon footprint.

Choosing to refurbish old bitumen membranes with ALCHIMICA's HYPERDESMO®-ADY-610/810. offers extensive advantages beyond mere cost savings. This approach not only minimizes disruption and reduces environmental impact but also enhances the building's performance and extends its service life. As a result, it represents a smarter, more sustainable choice for managing the longevity and efficiency of roofing systems, setting a high standard in waterproofing solutions.

WHY CHOOSE ALCHIMICA IN EXPOSED CONCRETE ROOF WATERPROOFING PROJECTS?

Waterproofing exposed concrete roofs in building structures is crucial due to the porous nature of concrete and its susceptibility to water damage. Without proper waterproofing, water infiltration can cause structural deterioration, especially in reinforced concrete structures with steel reinforcement embedded within the concrete matrix. Waterproofing serves as a protective barrier, preventing water from penetrating the concrete and preserving its integrity. It also extends the lifespan of the structure by shielding it from the harmful effects of water, such as corrosion of reinforcing steel and freeze-thaw cycles.

Waterproofing prevents mold and mildew growth, which pose health risks and further structural issues. By inhibiting their development, waterproofing contributes to a healthier indoor environment. Furthermore, waterproofing enhances energy efficiency by preserving insulation properties and reducing energy consumption for heating and cooling. The initial investment in waterproofing may seem significant, but it is worth it in comparison to the future costs of repairing water damage. Proactively addressing waterproofing can avoid costly repairs and replacements, making it a cost-effective long-term strategy. Compliance with building codes and regulations is essential for ensuring the safety and longevity of structures.

In reinforced concrete structures, the importance of waterproofing is amplified due to the presence of steel reinforcement. Waterproofing acts as a barrier, preventing water from reaching the steel reinforcement and reducing the risk of corrosion-induced damage. Waterproofing exposed concrete roofs is a critical aspect of construction that protects structural integrity, enhances durability, promotes energy efficiency, and ensures compliance with building standards.

Liquid-applied membranes offer ease of application and installation, taking the shape of the structure, piercing through pores and cracks, filling voids, resulting in a seamless elastic membrane, continuing waterproofing even after minor seismic activity, self-leveling property, and versatile installation alternatives. They are a cost-effective investment compared to repairing water damage and removing sheets and roll membranes.

Flat roofs with poor construction and design often face ponding water. This phenomenon occurs when water remains on a roof surface longer than 48 hours after the last rain event, leading to long-term water leakage and costly repairs. It can also damage the roof's substrate, cause concrete corrosion, and damage the existing waterproofing system. Liquid applied waterproofing systems can prevent these problems and are beneficial for post-repairment actions. These membranes with high ponding water-resistance can bond with the substrate, providing protection against puddles formed due to poor slope design. To test the adhesion of the existing membrane, press it on the ponding areas. Without proper ponding water resistance properties, a waterproofing membrane can start blistering and peeling, leading to roof system deterioration. HYPERDESMO® waterproofing membranes offer excellent water resistance, with zero water swelling rate, high UV, chemical, and mechanical resistance, and protection against harsh environmental conditions.

ALCHIMICA is a pioneer and a global leader in complete polyurethane waterproofing solutions. With pedigree and expertise in this field, ALCHIMICA overcomes the challenges that others deem impossible. The technological depth and know-how of ALCHIMICA allow the formulation of innovative PU-based materials that can achieve performance levels that are not typically met. ALCHIMICA has been active in the research, development, and production of building chemicals for 42 years providing solutions for liquid waterproofing, reparations, sealing, flooring, and ETICs. The know-how of ALCHIMICA in Research and Development laboratories in construction, repair, and renovation solutions of buildings and infrastructure meets international industry standards.

WHY CHOOSE SAME-DAY WATERPROOFING APPLICATIONS - EXPLAINING THE HAA TECHNOLOGY

Same-day waterproofing systems are a practical solution for exposed rooftops, effectively protecting against water infiltration. They are particularly useful in situations where traditional waterproofing systems may not be feasible or efficient. Same-day applications can provide a quick solution when there's an urgent need to waterproof a roof due to impending weather conditions or construction work, minimizing downtime and allowing other construction activities to proceed as planned. Cost efficiency is another advantage of same-day waterproofing, as it can be cost-effective in terms of labor costs. Same-day liquid-applied waterproofing systems are easier and quicker to apply compared to traditional methods, making them suitable for situations where skilled labor is limited or access to the roof is difficult.

When choosing same-day waterproofing, consider factors such as weather constraints, construction deadlines, and minimizing disruption to building occupants or activities. Whether the weather conditions are unpredictable, or you work in climates where humidity conditions may affect typical 1K PU systems, ALCHIMICA's innovative same day waterproofing systems based on the "Humidity Activated Accelerator (HAA)" Technology, allow you to complete your work timely and accurately, while saving time and installation costs. HYPERDESMO®-HAA can be applied in a single coat, on a single day, hence allowing applications to take place in a tight schedule and thus eliminating the risk of uncured membrane damage due to rain.

<<Single component, Single coat, on a Single day>>

ALCHIMICA's innovative same-day waterproofing systems are based on the Humidity Activated Accelerator Technology (HAA), a technology that provides a fast curing, bubble-free thick layer membrane. This unique formulation cures rapidly to form a defect-free membrane with excellent mechanical and elastomeric properties and allow for timely and accurate completion of work while saving time and installation costs.

We have developed the Humidity Activated Accelerator Technology (HAA) technology based on the successful combination of HYPERDESMO® and ACCELERATOR-3000A, which throughout the years has provided applicators with a solution for a fast curing, bubble free thick layer membrane. Our commitment to R&D and investment and our efforts to continuously upgrade our chemical processing plant has allowed us to formulate a HYPERDESMO® with the ACCELERATOR-3000A incorporated in a blocked fashion, that upon contact with humidity is released and self- accelerates the curing of the material in a similar manner as the ACCELERATOR-3000A. Due to its unique formulation, it cures rapidly to form a completely defect free membrane with excellent mechanical and elastomeric properties.

Additional products with HAA technology.

HYPERDESMO®-ADY 610 & HYPERDESMO®-ADY 810 are ALCHIMICA's most novel single component, fully aliphatic main and top coat products. They incorporate our Humidity Activated Accelerator technology that allows single coat application for a consumption of up to 2 kg/m^2, without any bubbling or shrinkages.

HYPERDESMO®-ADY 610 offers exceptional performance in waterproofing applications where pedestrian traffic is expected, while HYPERDESMO®-ADY 810 with a Shore A Hardness of 100 is suitable for heavy duty waterproofing applications as exposed car parks and stadium stands.

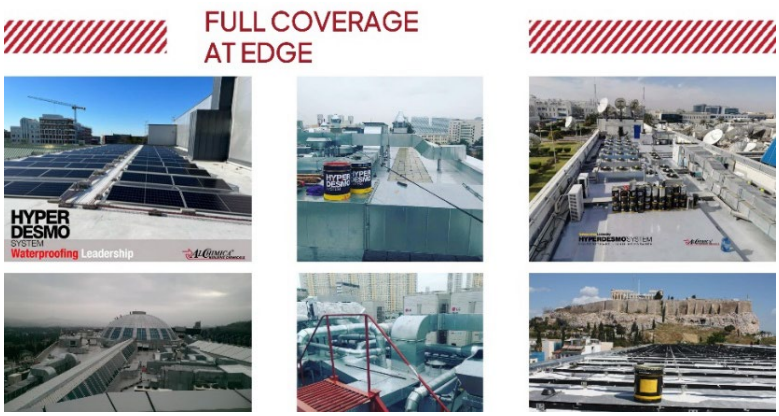
ALCHIMICA'S POLYURETHANE LIQUID MEMBRANES

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.

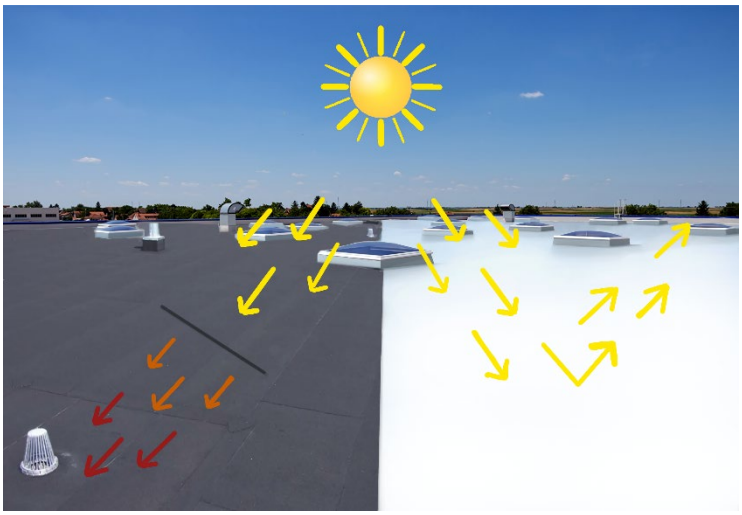
COOL ROOFS: ENHANCING URBAN ENERGY EFFICIENCY IN BUILDINGS THROUGH HEAT ISLAND REDUCTION

Urban heat islands (UHIs) pose a significant challenge in cities, with temperature disparities of up to 4°C between urban and rural areas. The primary culprits are concrete infrastructure and high-density materials in urban environments, which absorb and release heat more than natural landscapes. The low solar reflectance of urban surfaces adds to this heat absorption, contributing to the urban heat island effect.

Cool roofs emerge as a cost-effective solution to combat UHIs, enhancing thermal comfort and reducing cooling costs, especially in hot climates with high solar radiation. By incorporating cool roofs into urban design, we can mitigate the heat absorption and release associated with

traditional urban surfaces. However, the transformation of land surfaces exacerbates UHIs, as natural vegetation is replaced by structures with low solar reflectance and high impermeability, intensifying the heat island effect.

Human activities, including the use of vehicles and air-conditioning units, further escalate thermal energy in urban spaces, particularly in residential and commercial sectors. Acknowledging and addressing UHIs is crucial for creating resilient and sustainable cities. Mitigating UHIs requires the widespread adoption of cool roofs and reflective materials in urban construction, coupled with urban planning that prioritizes green spaces and sustainable design. By comprehensively understanding and addressing UHIs, we can contribute to the development of cooler, healthier urban environments capable of withstanding the challenges posed by a changing climate.



COOL ROOF

Roofs are one of the most exposed areas in buildings absorbing a high amount of heat. In this respect, cool roofs are considered one of the most sustainable and cost-effective solutions to reduce the heat island effect in cities and create at the same time the right thermal comfort in buildings.

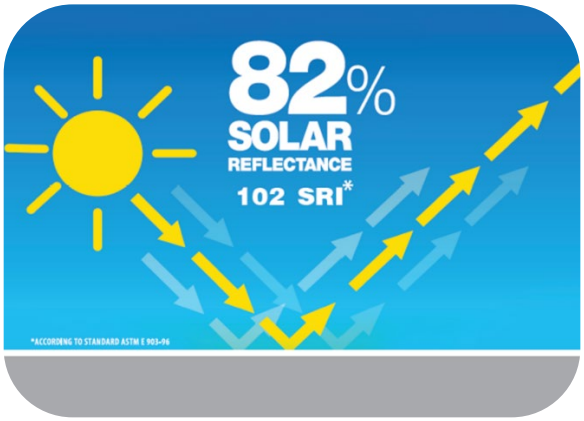
Cool roofs, which reflect over 65% of the sun's rays, play a crucial role in mitigating the urban heat island effect. These roofs, often white, repel heat due to the high solar reflectance of the materials used in their coating. By reflecting sunlight and minimizing heat absorption, cool roofs effectively reduce the heat island phenomenon, positively impacting the microclimate and environment of urban areas. Modern cool roofs employ highly reflective thermoplastic and liquid-applied membranes and coatings, offering long-term benefits.

White cool roofs, compared to traditional dark roofs, offer lower surface temperatures and substantial energy savings, with an average flat roof replacement rate of 5-7% per year. Beyond

environmental benefits, cool roofs prove economically attractive to building owners. They foster cooler, healthier cities, enhancing air quality, mitigating climate change, and significantly reducing overall energy consumption. Energy savings range from 15% to 35.7% in diverse climates, and cool roofs reduce roof surface temperatures by 1.4 ˚C to 4.7 ˚C, impactful in urban environments. Serving as a passive solution to minimize heat gain, improve indoor conditions, and cost-effectiveness, cool roofs' economic and ecological advantages depend on location, climate, and energy usage. Their versatility aligns seamlessly with sustainability, energy efficiency, and environmental well-being goals, making cool roofs a practical measure for cooler, healthier, and more sustainable urban environments.

How is the efficiency of cool roofs measured:

- SOLAR REFLECTANCE (SR): The ability of the roofing material to reflect solar radiation (%).
- THERMAL EMITTANCE: It shows how long a roof holds onto the energy when the sun heats the roofing material. The thermal emittance ranges from 0-1.
- SOLAR REFLECTIVE INDEX (SRI): The SRI is calculated based on solar reflectance and thermal emittance in conjunction with ambient air temperature, sky temperature, and wind factors. The solar reflective index is reported as a value from 0 to 130 ranging from least reflective at 0 to most reflective at 130.



Cool roofs play a pivotal role in advancing energy efficiency and urban sustainability, fostering cooler and healthier environments with improved air quality, specifically addressing the urban heat island phenomenon. Solar-reflective materials, crucial in warmer climates and densely populated areas, reduce cooling loads in regions with high solar radiation and elevated temperatures. Simple measures like applying white membrane systems can yield substantial annual energy savings of 10% or more, contributing to individual building energy efficiency and mitigating the broader urban heat island effect.

These roofs offer economic benefits by reducing energy bills, enhancing indoor comfort, and potentially extending the roof's service life. Moreover, they contribute to environmental well-

being by lowering local air temperatures, peak electric power demand, and power plant emissions. Cool roofs also play a crucial role in reducing heat trapping in the atmosphere by reflecting sunlight, mitigating the demand for air conditioning and overall heat load. In contrast, dark roofs contribute to increased cooling energy needs. Cool roofs stand as an environmentally preferable roofing solution that aligns with economic concerns, offering a practical and sustainable response to the challenges of urban heat islands and energy consumption.

ALCHIMICA's advanced roof waterproofing system with reflective materials based on the HYPERDESMO® System offers an SRI value of 102 tested according to ASTM E1980-01 and offers all the benefits of cool roofs. The system of HYPERDESMO® + HYPERDESMO® – ADY-E was submitted to the TECNALIA Testing Institute in Spain with the objective of testing the material's Solar Reflective Index (SRI) according to ASTM E1980-01. The results are shown below:

- **Solar Reflection (%): 82,2±0.1**
- **Emittance: 0.87±0.02**

SRI (ASTM E1980-01) Result:	
CONVECTION COEFFICIENT	SRI
Low (0-2m/s)	101,8±0,2
Medium (2-6m/s)	102,1±0,2
High (6-10m/s)	102,3±0,2

Cool roofs are recognized by green building certification systems like LEED, which verify a building's sustainability performance. LEED certification recognizing energy-efficient roofing, water run-off management, and renewable energy as key factors for building credits. Cool roof membranes can earn Credit 5, Option 1 "Heat Island effect – Roofing" in the Site Sustainability category of the LEED protocol.

Thanks to its high solar reflectance the HYPERDESMO® System contributes to the reduction of air conditioning usage which can lessen energy costs by up to 15%. Reduction of the urban heat island effect in cities and suburbs, minimizing thermal impact on the microclimate and local environment. High thermal emissivity to release the absorbed heat. Minimizes heat gains inside buildings, improving occupant comfort. Enhances the durability and the appearance of roofs by significantly lowering material temperatures and extending their life cycle.

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 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).

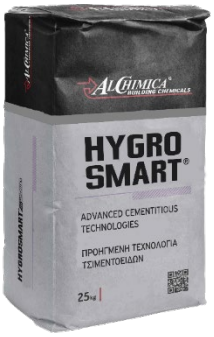
HYGRO SMART® SYSTEM Advanced Cementitious Technologies

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**).



REPAIR OF EXISTING BITUMEN MEMBRANES

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.

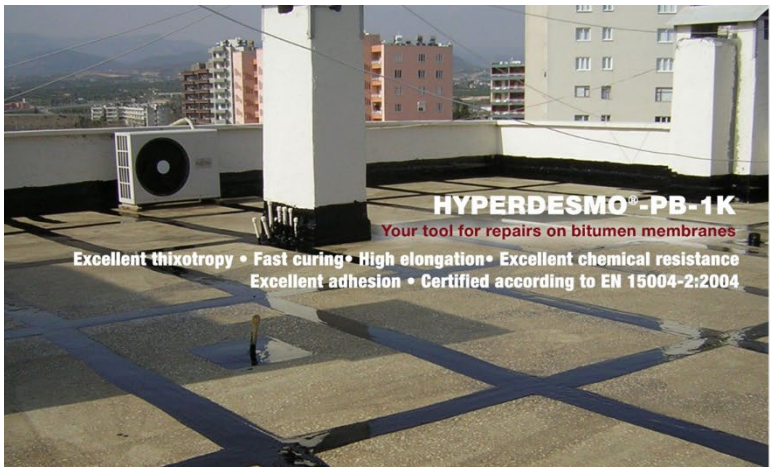
Firstly, using a product like HYPERDESMO®-PB-1K, which is specifically formulated to be compatible with bitumen substrates, is an excellent choice. These bitumen-extended polyurethane (PU) products are designed to bond well with bitumen-based materials without the adverse reactions that standard PU sealants might cause. Before applying any coating on top, it's crucial to create a barrier that can further ensure compatibility and adhesion. Using UNIVERSAL-PRIMER-2K-4060, helps to prepare the surface and acts as an intermediary layer that can effectively bond with both the bitumen-extended PU product underneath and the PU-based coating to be applied on top.
Finally, applying a PU-based coating such as HYPERDESMO® membranes over the primer ensures a durable, resilient finish. These membranes will provide the necessary waterproofing and protective characteristics required for your project, especially in exterior environments where exposure to elements is a concern.

This multi-layer approach not only prevents material incompatibility but also ensures that each layer contributes to the overall structural integrity and effectiveness of the waterproofing or sealing process. Always ensure that each product is applied according to the TDS specifications for the best results.

SEALING - LOCAL REPAIR TREATMENT OF BITUMEN MEMBRANES

Flashing points, bitumen surface irregularities, cracks, and/or points where the bitumen membranes have lost adhesion from the substrate adhesion can be repaired using HYPERDESMO®-PB-1K. Dilatation joints and large cracks should be treated with HYPERDESMO®-PB-1K.

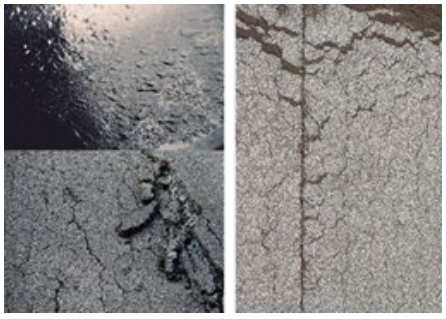
HYPERDESMO®-PB-1K is a quick-curing, one component, thixotropic, bitumen-extended polyurethane fluid for flashing, waterproofing and protection. It produces a hydrophobic, elastic membrane with very strong adhesion to most types of substrates, as well as bituminous membranes, while offering excellent 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 bitumen 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.

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.



Selecting the correct and suitable primer over bitumen membranes and surfaces is a critical step in the waterproofing process, especially considering the unique challenges presented by bitumen-based materials. Bitumen, by nature, can delaminate any subsequent coatings adhered to it, particularly under the strain of thermal expansion. When temperatures rise, asphaltic and bituminous materials tend to expand and may exude "bituminous oils" through a process known as bleeding. This can compromise the adhesion of coatings applied over the bitumen, leading to delamination and reduced effectiveness of the waterproofing system.

Addressing this concern, ALCHIMICA's innovation and R&D capabilities have led to the development of the UNIVERSAL PRIMER-2K-4060. This product is engineered as an ideal solution when working over bituminous membranes and old concrete surfaces that may be contaminated by oils, grease, or other hydrophobic substances. The primer serves as an "oil barrier," creating a film that prevents these oils from affecting the subsequent layers of coating. This is particularly important as it ensures the adhesion of the waterproofing system remains intact over time, even in the face of thermal cycling and potential bleeding from the bitumen below. Its formulation allows it to bond effectively to "contaminated" surfaces, providing a stable and receptive base for the application of further waterproofing or protective coatings. This innovation not only enhances the durability and longevity of the waterproofing system but also streamlines the application process, leading to time and cost savings.

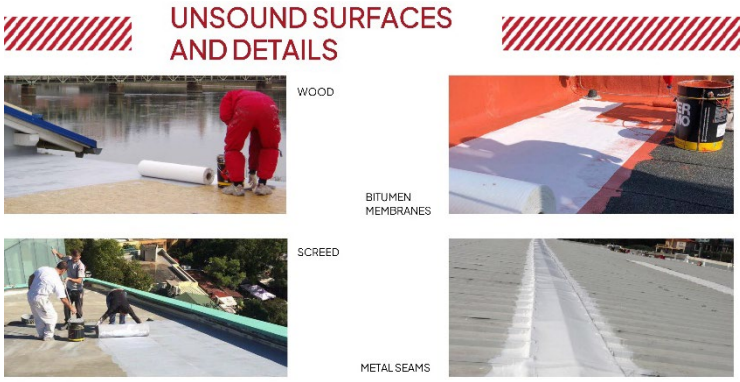
As a result, ALCHIMICA's primer stands out as a reliable and efficient choice for professionals tackling the complexities of waterproofing over bituminous surfaces. ALCHIMICA’s primers are designed to secure your waterproofing application in every substrate by strengthening the substrate, stabilizing, and sealing it, offering remarkable adhesion with their respective main membranes and sealants.

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

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 (tanks)
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	-	-

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 -40ºC. 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® 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.

GEOTEXTILE-50 (1X200m)

GEOTEXTILE-50 is a non-woven geotextile, from 100% polyester fibers, manufactured with the needle punching process.

COLOR	PACKAGING
WHITE	200m

GEOTEXTILE-50 PRESSED (1.02X100m) (0.17X100m)

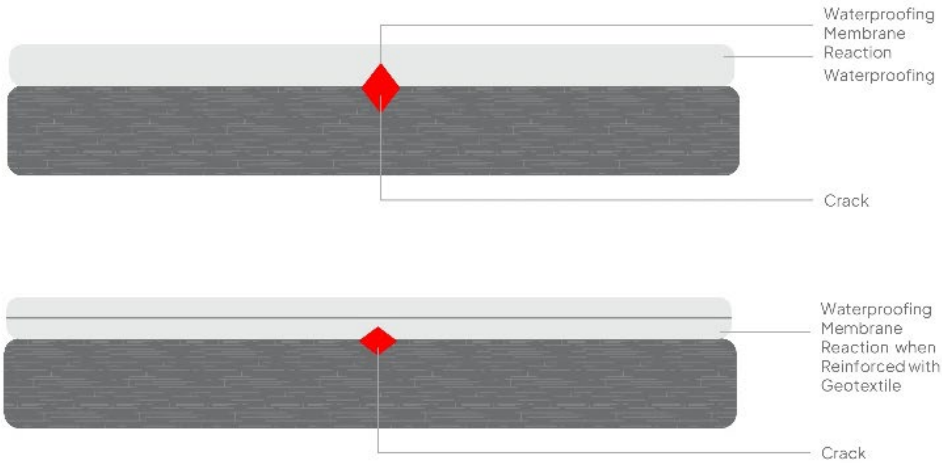
GEOTEXTILE-50 PRESSED is a non-woven geotextile, from 100% polyester fibers, manufactured with spun-lacing process (hydro-entanglement).

COLOR	PACKAGING
WHITE	100m
WHITE	100m

GEOTEXTILE-45 PRESSED (1.02X100m)

COLOR	PACKAGING
WHITE	100m²

THICKNESS OR TENSILE STRENGTH



METHOD STATEMENT

BITUMEN MEMBRANE REFURBISHMENT AND PROTECTION BASED ON THE HYPERDESMO®-ADY-610/810.

The HYPERDESMO®-ADY 610 & -ADY 810 system streamlines bitumen membrane refurbishment by combining a waterproofing membrane and top coat into one. Designed for single-coat application, it suits tight schedules and unpredictable weather, eliminating the need for additional layers and reducing the risk of damage from rain. This makes it an efficient solution for durable, reliable waterproofing of exposed structures.

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:

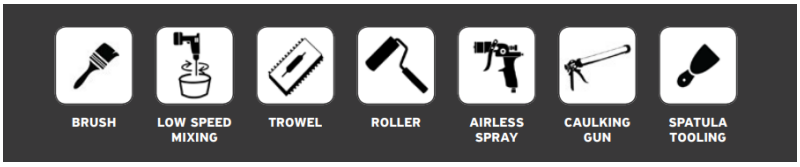
- Protective clothing: Protective overalls, masks, and gloves.
- Mixing equipment: 1KW slow speed drill, 400 or 500 rpm, and suitably sized mixing vessel.
- When stirring (or pigmenting) take care not to introduce air into the fluid, which may result in bubbling on the cured membrane. Stirring can either 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

APPLICATION WITH AIRLESS SPRAY MACHINE.

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.

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*



- 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.).

BITUMEN MEMBRANE SUBSTRATES

When the bitumen membranes that protect a concrete roof show signs of deterioration and water infiltration and require repairs, it is mandatory to protect them and render the roof waterproof once again. ALCHIMICA's seamless and durable solutions for bitumen membrane refurbishment and protection offer high quality waterproofing performance while offering ease of application and hence being the least invasive solution for old roofs. Beyond these types of substrates our complete range of primers allow for application over a multitude of different surfaces. With the use of the HYPERDESMO®-ADY-610/810 we achieve high performance waterproofing, in the least invasive way and with great ease of application.

Standard concrete substrate conditions

- Hardness: R28 = 15 MPa.
- Humidity: W < 10%.
- Temperature: 5-35 ºC.
- 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.
- Bitumen membranes should be sound and well adhered to the substrate. Loose membrane parts should be fixed as described below.
- 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:

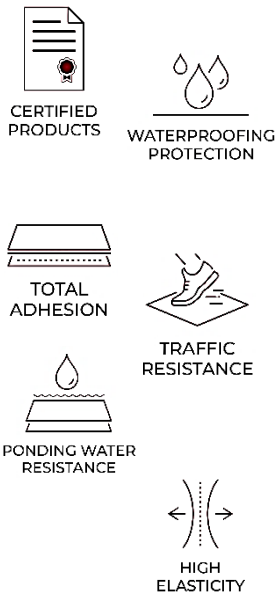
Testing the products to be used in this build-up application on the specific substrate and conducting mock-up tests are essential steps to ensure good adhesion. Mock-up tests replicate real-world conditions and provide a practical way to evaluate the performance of the products in situ. Pull-out tests 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

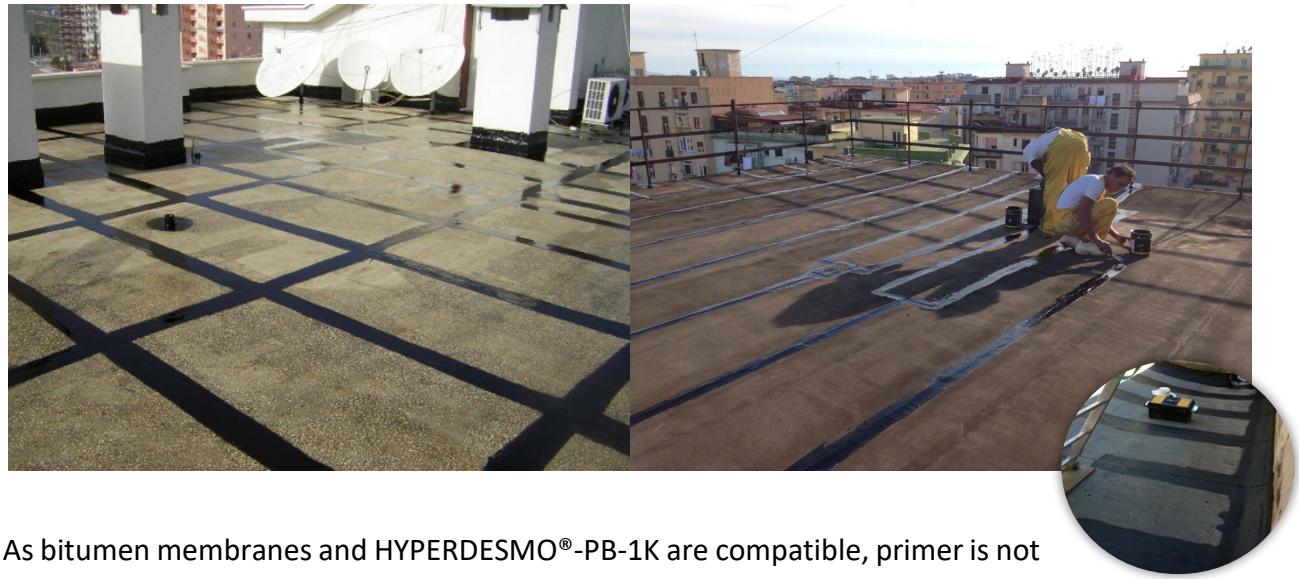
	PRODUCT	CONSUMPTION
1. LOCAL DETAILS TREATMENT	HYPERDESMO®-PB-1K	Subject to project needs
2. PRIMER	UNIVERSAL PRIMER-2K-4060	200-400 gr/m² Subject to porosity
3. REINFORCEMENT	GEOTEXTILE-45/50 PRESSED	Subject to project needs
4. MAIN MEMBRANE	HYPERDESMO®-ADY-610 OR HYPERDESMO®-ADY-810	Total consumption: 2-2,5 kg/m²



LOCAL DETAILS TREATMENT

Flashing points, bitumen surface irregularities, cracks, and/or points where the bitumen membranes have lost the interlayer adhesion or the substrate adhesion, all dilatation joints, inner angles, wall-floor connections, cracks, drainage details, pipes, other elements of equipment mechanically installed on a roof (air conditioning, antennas, photovoltaic systems, etc.) must be treated with HYPERDESMO®-PB-1K. This product is adept at repairing flashing points, surface irregularities, and areas where bitumen membranes have suffered from loss of interlayer or substrate adhesion. It is also the treatment of choice for dilatation joints and significant cracks. As a quick-curing, single-component, thixotropic, bitumen-extended polyurethane fluid, HYPERDESMO®-PB-1K is designed for flashing, waterproofing, and protection applications, creating a hydrophobic, elastic membrane with strong adhesion to various substrates, including existing bituminous membranes.

Clean joints thoroughly, and ensure that no dust, oil, grease and wax contaminants, silicone remains are present. For many applications, primer is not obligatory. However, in case of application on porous or/and wet substrate the primer is required, as there is a possibility of air bubbles blown into the uncured product if the substrate temperature rises. After the primer is cured, you can either apply HYPERDESMO®-PB-1K in one single coat or reinforce it.



As bitumen membranes and HYPERDESMO®-PB-1K are compatible, primer is not required. Teat 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.

HYPERDESMO®-PB-1K is a single-component, polyurethane fluid that is quick-curing and thixotropic. It is used for flashing, details, and repairs on asphalt membranes and several other types of substrates. The fluid is based on a pure elastomeric hydrophobic polyurethane resin that is extended with chemically polymerized virgin bitumen. HYPERDESMO®-PB-1K has excellent mechanical, chemical, thermal, and thixotropic properties with minimum bubbling formation. It has fast curing properties and excellent adhesion on almost any type of surface, with or without the use of special primers. 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.

SUBSTRATE PRIMING

■ UNIVERSAL PRIMER-2K-4060 is a fast-curing polyurethane primer that allows same-day application for both primer and main coat membrane. It is ideal for cold weather or low humidity conditions, as its curing time is not significantly affected by climate making it suitable for use in cold climates or low humidity conditions. The 100% polyurethane product can be applied on damp concrete and performs excellent adhesion to various surfaces (exceeding the requirements of EOTA). It is non-toxic and has zero V.O.C..The product is an excellent bitumen-oil barrier and is solvent-less, making it suitable for closed spaces.

Mixing: Mix the two components well manually or using a low speed (300 rpm) mixer. Mix the two components well. In high temperatures, pour mixture in shallow, wide container in order to increase pot life.

Application: You choose this primer when you need an effective oil barrier and a fast curing, solventless PU primer. UNIVERSAL PRIMER-2K-4060 is an ideal solution when working over old concrete surfaces contaminated by oils, grease etc., because it creates a very effective "oil barrier" film that protects the new coating. UNIVERSAL PRIMER-2K-4060 is solvent free and zero VOC primer and suitable for both indoors and outdoors applications. Apply with brush or roller in thin coat with total consumption not exceeding 200 gr/m^2. In case of bitumen membranes with mineral chippings, consumption should be at 400 gr/m^2 in 2 coats. In order to achieve such a small consumption, you can dilute UNIVERSAL PRIMER-2K-4060 with 5-10% of SOLVENT-01 (After thinning the product no longer has zero VOC). Main coat must be applied maximum 6 hours after primer application.

Tip: For increased pot life and/or reduced consumption, add 5-10%. Empty mixed pail contents either in a shallow container or directly on the surface to be primed in order to increase the pot life further.

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.

MAIN WATERPROOFING MEMBRANE

HYPERDESMO®-ADY 610/810 can be applied in a single coat, on a single day. As a 2-in-1 solution, they combine the functionalities of both a waterproofing membrane and a top coat, eliminating the need for an additional protective layer. The key differences between HYPERDESMO®-ADY 610 and HYPERDESMO®-ADY 810 lie in their intended use cases and performance characteristics:

WATERPROOFING	HYPERDESMO®-ADY-610	HYPERDESMO®-ADY-810
CONSUMPTION	- 2 kg/m² - >2 kg/m² Subject to traffic needs	2 kg/m² >2 kg/m² Subject to traffic needs
APPLICATIONS METHODS	brush, roller, airless spraying	brush, roller, airless spraying
TACK FREE TIME, @ 77 °F (25°C) & 55% RH	6-12 Hours	6-12 Hours
APPLICATION OVER PREVIOUS COAT (PRIMER)	Depending on the primer curing time	Depending on the primer curing time
RECOAT TIME OF PRODUCT	24 Hours	24 Hours
ADDITIVES	• THIXO-TOOL • CHECK THE TDS FOR COMPATIBILITY	• THIXO-TOOL • CHECK THE TDS FOR COMPATIBILITY
COLORS	WHITE, GREY	WHITE, GREY
COMPONENTS	SINGLE COMPONENT	SINGLE COMPONENT

- HYPERDESMO®-ADY 610 is designed for applications requiring color stability, UV resistance, and can be applied in one coat. It's recommended for roofs, verandas, balconies, and light roofing made of metal or fibrous cement, among others. It offers excellent weather, UV resistance, and hydrophobic properties, making it suitable for a wide range of substrates.

- HYPERDESMO®-ADY 810, on the other hand, is tailored for heavy-duty high traffic areas, offering exceptional abrasion, scratch resistance, and UV resistance. It's suitable as a top coat

for exposed car parking decks and can be used in both single-layer applications or as a top coat over HYPERDESMO® systems. This product is recommended for areas subjected to vehicular traffic and where high durability and heavy-duty resistance are critical.

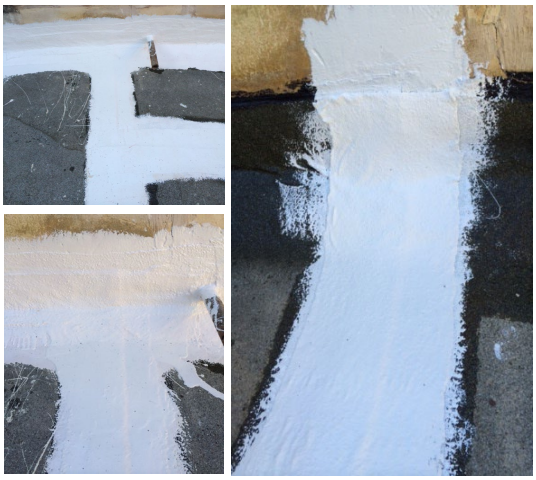
Choose HYPERDESMO®-ADY 610 for projects where color stability and a single-coat application are priorities, and HYPERDESMO®-ADY 810 for areas requiring high abrasion resistance and durability under vehicular traffic.

The refurbishment of old bitumen membranes using ALCHIMICA's HYPERDESMO®-ADY 610/810 system, reinforced with geotextile, is an effective strategy for enhancing roof longevity and functionality. Non-woven geotextiles improve the performance of waterproofing systems by reinforcing the elastic properties of elastomeric membranes like HYPERDESMO®-ADY 610/810. This synergy allows the waterproofing layer to accommodate structural movements and resist tearing, even amid significant substrate shifts or large cracks. Bitumen membranes are vulnerable to environmental and mechanical degradation over time. Incorporating geotextile helps distribute these stresses more uniformly, reducing damage to the membrane. The superior pre-break elongation properties of geotextiles also decrease the risk of future cracking, thereby maintaining the membrane's integrity for an extended period.

In demanding construction environments, geotextiles are especially beneficial. They bolster the waterproofing system to handle diverse conditions and ensure sustained protection. By enhancing the elastic qualities of the HYPERDESMO®-ADY 610/810 System, geotextiles ensure

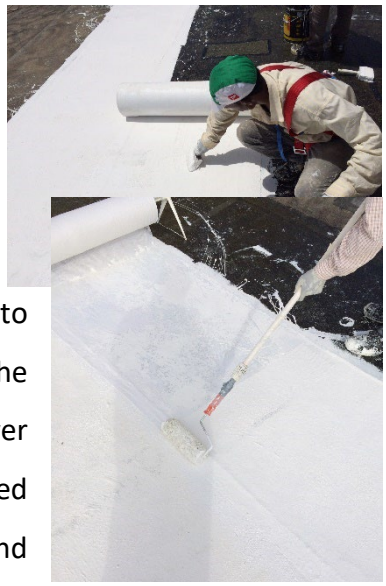
the membrane remains intact and functional despite any substrate movements or cracks. ALCHIMICA's non-woven geotextiles, compatible with both solvent-based and water-based liquid waterproofing systems, bolster the treatment's reliability and effectiveness. This strategic integration of geotextiles promotes durability, reliability, and sustainability in building maintenance, providing a high-quality, enduring waterproofing solution that safeguards the structure and the investment.

TREATMENT OF DETAILS WITH REINFORCEMENT: HYPERDESMO®-ADY-619/810 with GEOTEXTILE.



In the refurbishment process, specifically treating the joints and connections of bitumen membranes as well as and details can also be treated by application of HYPERDESMO®-ADY-619/810 with GEOTEXTILE reinforcement. When the primer is fully cured, treat the details with HYPERDESMO®-ADY-619/810 using a brush or small roller. 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. After the details treatment has been completed you continue with the application of the full surface waterproofing system.

APPLICATION OVER THE WHOLE SURFACE



Begin by applying the initial coat of HYPERDESMO®-ADY-619/810 at a rate of at least 1kg/m^2 kg per square meter to ensure proper coverage. While this first layer is still tacky, lay down the GEOTEXTILE-50 PRESSED, which is a non-woven geotextile material weighing 50 grams per square meter. This reinforcement should be carefully placed onto the wet HYPERDESMO® coat to ensure it bonds well with the membrane. Once the first coat with the geotextile in place, you can either apply wet-on-wet the second layer of HYPERDESMO®-ADY-619/810 or wait till it has sufficiently dried and is no longer sticky to the touch. Proceed to apply the second

layer of HYPERDESMO®-ADY-619/810. Maintain the same application rate of at least 1kg/m^2 kg per square meter for this top coat, which seals in the geotextile and completes the waterproofing process, enhancing the overall strength and longevity of the membrane.

Mixing: Use a low speed (300 rpm) mixer.

- *Clean tools and equipment first with a paper towel and then using SOLVENT-01.*
- *The above-mentioned recommended system of HYPERDESMO®-ADY-619/810 allows same-day waterproofing application.*

HYPERDESMO®-ADY 610

WATERPROOFING	HYPERDESMO®-ADY-610
CONSUMPTION	- 2 kg/m^2 - >2 kg/m^2 Subject to traffic needs
APPLICATIONS METHODS	brush, roller, airless spraying
TACK FREE TIME, @ 77 ºF (25ºC) & 55% RH	6-12 Hours

HYPERDESMO®-ADY 610 is a fully aliphatic, one-component polyurethane liquid membrane designed for waterproofing and color protection. It is based on ALCHIMICA's HAA - Humidity Activated Accelerator Technology (H.A.A) and is self-levelling, with a good viscosity profile over a large temperature range. It is recommended to be applied in one coat, saving labor costs and minimizing errors due to inter-adhesion failures. The product retains color stability even when applied in dark colors, and especially when applied in white, it provides excellent solar reflectance for many years. It is self-levelling, with excellent mechanical, chemical, thermal, UV, and natural element resistance properties. It is suitable for exposed waterproofing applications such as concrete roofs and metal roofs, and can be applied using brush, roller, or airless spraying.

APPLICATION OVER PREVIOUS COAT (PRIMER)	Depending on the primer curing time
RECOAT TIME OF PRODUCT	24 Hours
ADDITIVES	• THIXO-TOOL • CHECK THE TDS FOR COMPATIBILITY
COLORS	WHITE, GREY
COMPONENTS	SINGLE COMPONENT

The membrane's excellent weather and UV resistance, low viscosity, high elasticity, tensile and tear strength, and high hydrophobic properties make it an excellent choice for applications such as concrete roofs and metal roofs. It is highly hydrophobic and offers excellent chemical and hydrolysis resistance. Overall, HYPERDESMO®-ADY 610 is a cost-effective and efficient solution for waterproofing and color protection.

TYPES OF APPLICATIONS

SINGLE COAT APPLICATION	HYPERDESMO®-ADY 610 can be applied in only 1 single coat, with a maximum consumption of up to 2kg/m^2.
APPLICATION WITH REINFORCEMENT ✓ GEOTEXTILE ✓ FIBER TEXTILE	You apply the 1st coat of HYPERDESMO®-ADY-610. with a minimum consumption of 1-1.2 kg/m^2. When HYPERDESMO®-ADY-610 is still wet, you apply the reinforcement (GEOTEXTILE-50 PRESSED (non-woven geotextile of 50gr/m^2)). Immediately, wet on wet, application of the 2nd coat of HYPERDESMO® -ADY-610. with a minimum consumption of 1 kg/m^2 takes place. Or, as soon as HYPERDESMO®-ADY-610 1st coat cures, application of the 2nd coat of HYPERDESMO®-ADY-610, with a minimum consumption of 1-1.2 kg/m^2 takes place.
APPLICATION WITH BROADCASTING SAND	If an anti-slippery effect is required, silica sand or corundum aggregates can be broadcasted over the HYPERDESMO®-ADY 610 waterproofing membrane. Over the fresh and last coat of HYPERDESMO®-ADY 610 broadcast natural dry quartz or corundum aggregates, and let it cure. The next day you remove the excess non-bonded aggregates. Most applicators use a vacuum cleaner.

Then, you apply on top a thin coat of HYPERDESMO®-ADY 610 at 0.8 kg/m^2 in order to encapsulate the silica sand.

If transparent top coat is needed in order to keep the sand aesthetic result, apply HYPERDESMO®-ADY-E TRANSPARENT or HYPERDESMO®-T at 200gr/m^2 in order to encapsulate the silica sand. For traffic requirements, after this coat has cured, you can apply another coat of HYPERDESMO®-ADY-E TRANSPARENT or HYPERDESMO®-T at 400gr/m^2.

APPLICATION WITH BROADCASTING FLAKES

For decorative colour chips finish, apply the last coat of HYPERDESMO®-ADY 610 and over the fresh coat, you broadcast the color flake chips. Flakes broadcast at usually 1kg/m^2 (consumption depends on the result that the client wants) while the product is still wet.

The next day you remove the excess non-bonded flakes. Most applicators use a leaf blower in order to remove, but also recover any non-used flakes, instead of using a vacuum cleaner which would destroy the flakes.

Then, you apply on top a second thin coat of HYPERDESMO®-ADY-E TRANSPARENT or HYPERDESMO®-T at 200gr/m^2 in order to encapsulate the flakes. Most applicators usually use a squeegee to spread the product and follow with a roller to smoothen it out. For traffic requirements, after this coat has cured, you can apply another coat of HYPERDESMO®-ADY-E TRANSPARENT or HYPERDESMO®-T at 400gr/m^2.

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.

PIGMENTATION OF HYPERDESMO®-ADY 610 NEUTRAL

HYPERDESMO®-ADY 610 is either pre-pigmented from the factory in white/grey colour or it comes in NEUTRAL version that must be pigmented with ALCHIMICA's PIGMENT PASTES only (10% max).

At a maximum ratio of 10% by weight, the PIGMENTS PASTES are designed to be compatible with ALCHIMICA's products, offering high hiding power to the transparent or neutral versions of HYPERDESMO®-ADY 610. Pour the PIGMENT PASTE content of the pail into the product at a maximum ratio of 10% by weight. Mix thoroughly using a low-speed electric mixer until the product homogenizes. Apply the product as per standard application instructions.

HYPERDESMO®-ADY 810

HYPERDESMO®-ADY 810 is a fully aliphatic, one-component polyurethane liquid membrane designed for use as a waterproofing membrane or as a top coat for heavy duty and high traffic deck coating systems and roofs. It is based on ALCHIMICA's HAA - Humidity Activated Accelerator Technology (H.A.A) and it is self-levelling, with a good viscosity profile over a large temperature range that will cure to form a bubble-free membrane that is recommended to be applied in only one coat. It is heavy-duty, fully aliphatic, with excellent mechanical, chemical, thermal, UV and natural element resistance properties, excellent abrasion, impact, and UV resistance, excellent mechanical properties, high elasticity, tensile and tear strength, and excellent chemical and hydrolysis resistance.

WATERPROOFING	HYPERDESMO®-ADY-810
CONSUMPTION	- 2 kg/m² >2 kg/m² Subject to traffic needs
APPLICATIONS METHODS	brush, roller, airless spraying
TACK FREE TIME, @ 77 °F (25°C) & 55% RH	6-12 Hours
APPLICATION OVER PREVIOUS COAT (PRIMER)	Depending on the primer curing time
RECOAT TIME OF PRODUCT	24 Hours
ADDITIVES	• THIXO-TOOL • CHECK THE TDS FOR COMPATIBILITY
COLORS	WHITE, GREY
COMPONENTS	SINGLE COMPONENT

Usage for heavy-duty exposed waterproofing applications such as car parking decks and heavy-duty concrete roofs is recommended. The HYPERDESMO®-ADY 810 system is a must-have for top-coating HYPERDESMO® systems when traffic resistance is required, as well as for main membrane and top coat application in one layer in typical heavy-duty waterproofing applications. This 2-in-1 solution eliminates the need for an additional protective layer and saves on labor costs.

TYPES OF APPLICATIONS

SINGLE COAT APPLICATION	HYPERDESMO®-ADY 810 can be applied in only 1 single coat, with a maximum consumption of up to 2kg/m².
APPLICATION WITH REINFORCEMENT ✓ GEOTEXTILE ✓ FIBER TEXTILE	You apply the 1st coat of HYPERDESMO®-ADY-810. with a minimum consumption of 1-1.2 kg/m². When HYPERDESMO®-ADY-810 is still wet, you apply the reinforcement (GEOTEXTILE-50 PRESSED (non-woven geotextile of 50gr/m²)). Immediately, wet on wet, application of the 2nd coat of HYPERDESMO® -ADY-810. with a minimum consumption 1 kg/m² takes place. Or, as soon as HYPERDESMO®-ADY-810 1st coat cures, application of the 2nd coat of HYPERDESMO®-ADY-810, with a minimum consumption of 1-1.2 kg/m² takes place.

APPLICATION WITH BROADCASTING SAND

If an anti-slippery effect is required, silica sand or corundum aggregates can be broadcasted over the HYPERDESMO®-ADY-810 waterproofing membrane.

Over the fresh and last coat of HYPERDESMO®-ADY 810 broadcast natural dry quartz or corundum aggregates, and let it cure. The next day you remove the excess non-bonded aggregates. Most applicators use a vacuum cleaner.

Then, you apply on top a thin coat of HYPERDESMO®-ADY 810 at 0.8 kg/m^2 in order to encapsulate the silica sand.

If transparent top coat is needed in order to keep the sand aesthetic result, apply HYPERDESMO®-ADY-E TRANSPARENT or HYPERDESMO®-T at 200gr/m^2 in order to encapsulate the silica sand. For traffic requirements, after this coat has cured, you can apply another coat of HYPERDESMO®-ADY-E TRANSPARENT or HYPERDESMO®-T at 400gr/m^2.

ANTI-SLIP TRAFFIC COAT WITH SILICA SAND AND HYPERDESMO-ADY 810

For traffic resistance and color protection, over the main waterproofing layer, you should apply an additional traffic coat of HYPERDESMO®-ADY 810 combined with silica sand.

In general: Total consumption of HYPERDESMO®-ADY 810 should be 1.5-2.0kg/m^2 in 2 successive coats over the intermediate waterproofing coat. The consumption of the silica sand for each layer of HYPERDESMO®-ADY-810 should be +/-1kg/m^2, depending on the sand's granulometry.

Application of traffic coat should be as follows:

1. Apply the first layer of HYPERDESMO®-ADY 810 traffic coat at a consumption of 0.7kg-1kg/m^2 with roller, squeegee, notched trowel or air-less spray machine.
2. Immediately broadcast silica sand (recommended granulometry: 0.3-1mm).
3. Spread the sand as to homogenously cover the total surface.
4. Immediately rollback the surface with roller in order to homogenize the silica sand with HYPERDESMO®-ADY 810 and to achieve the above-mentioned consumption.
5. The following day, apply the second layer of traffic coat, repeating the same procedure and consumption of HYPERDESMO®-ADY 810, as per first layer (0.7kg- 1kg/m^2).

APPLICATION WITH BROADCASTING FLAKES

For decorative colour chips finish, apply the last coat of HYPERDESMO®-ADY 810 and over the fresh coat, you broadcast the color flake chips. Flakes broadcast at usually 1kg/m^2 (consumption depends on the result that the client wants) while the product is still wet.

The next day you remove the excess non-bonded flakes. Most applicators use a leaf blower in order to remove, but also recover any non-used flakes, instead of using a vacuum cleaner which would destroy the flakes.

Then, you apply on top a second thin coat of HYPERDESMO®-ADY-E TRANSPARENT or HYPERDESMO®-T at 200gr/m^2 in order to encapsulate the flakes. Most applicators usually use a squeegee to spread the product and follow with a roller to smoothen it out. For traffic requirements, after this coat has cured, you can apply another coat of HYPERDESMO®-ADY-E TRANSPARENT or HYPERDESMO®-T at 400gr/m^2.

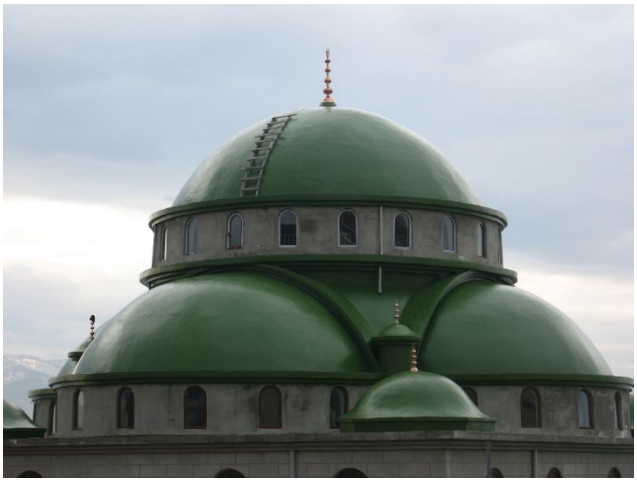
APPLICATION WITH AIRLESS (200- 250 bar) SPRAY MACHINE.

6. Open the pail and stir it up to homogenize.
7. If necessary, add 5~10% SOLVENT-01 into the pail and mix it with medium-speed mechanical equipment.
8. Apply thin layers using an airless spray machine.
9. Wait for the recoat time.
10. Repeat this process until the desired or recommended thickness.

PIGMENTATION OF HYPERDESMO®-ADY 810 NEUTRAL

HYPERDESMO®-ADY 810 is either pre-pigmented from the factory in white/grey colour or it comes in NEUTRAL version that must be pigmented with ALCHIMICA's PIGMENT PASTES only (10% max).

At a maximum ratio of 10% by weight, the PIGMENTS PASTES are designed to be compatible with ALCHIMICA's products, offering high hiding power to the transparent or neutral versions of HYPERDESMO®-ADY 810. Pour the PIGMENT PASTE content of the pail into the product at a maximum ratio of 10% by weight. Mix thoroughly using a low-speed electric mixer until the product homogenizes. Apply the product as per standard application instructions.



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.

ADDITIVES FOR THE HYPERDESMO®-ADY-610/810.

ADDITIVES	
THIXO-TOOL	THIXO-TOOL is a unique additive used for Increasing the thixotropy (reducing the self-leveling characteristics) of the HYPERDESMO® System. It was developed by ALCHIMICA in order to solve application difficulties of the HYPERDESMO® System in severely inclined, uneven, or completely vertical substrates.
	The recommended addition ratio is 10-30% depending on the surface inclination, substrate condition, and desired final consumption.
PLEASE REFER TO THE TDS OF THIXO-TOOL TO MAKE SURE WHICH HYPERDESMO PRODUCTS ARE COMPATIBLE WITH THE ADDITIVE.	Open the can of HYPERDESMO® and mix thoroughly before adding THIXO-TOOL. Open the sausage of THIXO-TOOL and empty the desired amount by hand into the pail (leftover material can be sealed and stored for later use). The addition of THIXO-TOOL depends on specific project requirements, but the recommended amount is 10-30%. Mix the THIXO-TOOL with a low-speed mixer, careful not to introduce air. Apply final material as described in the Technical Data Sheet at the time of purchase.
	THIXO-TOOL can be used alongside ACCELERATOR 3000A when the use of the latter is recommended.

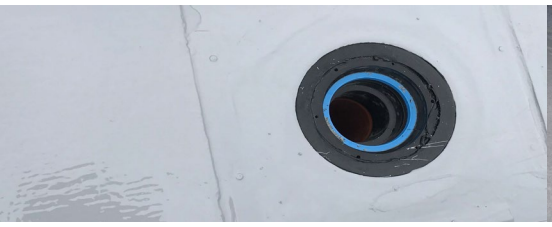
REPAIR AND OVERLAPS PROCESSES

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 HYPERSEAL®-EXPERT- 150, tool it to form a smooth patch, and the next day apply the same coat and topcoat that was applied to the rest of the membrane waterproofing system (if one was used) in order to ensure long term UV protection of the 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® 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 UNIVERSAL-PRIMER-2K-4060 at the consumption of 50-80gr/m^2 in order to secure adhesion. After 6-12h you can apply the next coat of HYPERDESMO®.

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

REFURBISHED ROOFS 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 BITUMEN MEMBRANE REFURBISHMENT AND PROTECTION BASED ON HYPERDESMO®-ADY-610/810**.** 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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