INVERTED INSULATION AND WATERPROOFING SYSTEM BASED ON HYPERDESMO® SYSTEM.

ALCHIMICA® BUILDING CHEMICALS

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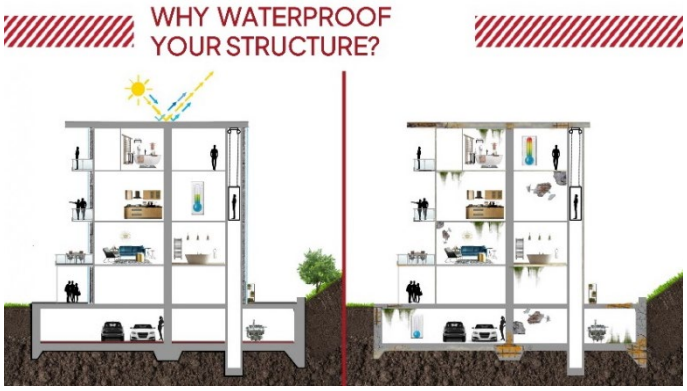
WHY CHOOSE ALCHIMICA IN NON-EXPOSED/ INVERTED INSULATION ROOF WATERPROOFING PROJECTS?

Waterproofing is a fundamental aspect of construction that safeguards the structural integrity and longevity of buildings. In the case of non-exposed and/or inverted insulation roofs, where the waterproofing layer is located beneath the insulation, the role of waterproofing becomes even more crucial. These roofing systems are designed to protect against water ingress, thereby preserving the structural components and ensuring the building's durability. ALCHIMICA's waterproofing membranes are made for easy integration into non-exposed or inverted insulation roofing projects. These high-performance membranes effectively block water ingress, ensuring the structural integrity of buildings and protecting them from deterioration and corrosion.



The primary function of waterproofing in any building is to prevent water from penetrating and causing damage. In inverted roofing systems, the waterproofing membrane is applied directly to the structural deck, under layers of insulation and surface materials. This placement necessitates flawless waterproofing to prevent water from seeping through and reaching the structural core, where it can cause deterioration and corrosion of critical materials, such as steel reinforcements within concrete structures. Effective waterproofing is the first line of defense against these potentially devastating problems, protecting the building’s structure from moisture-related damage.

Inverted roofing systems feature a waterproofing membrane that is protected from direct exposure to environmental stressors such as UV radiation, weathering and physical damage by the overlying insulation. This protection can significantly extend the life of the waterproofing membrane compared to traditional exposed membrane systems. However, the critical nature of this membrane means that any failure, due to improper installation or material defects, can remain hidden until it causes significant damage. Therefore, selecting a high-quality waterproofing material and ensuring proper installation are paramount to the long-term performance and durability of the roofing system.

One of the advantages of inverted roofs is their ability to enhance a building's thermal efficiency. The insulation layer on top of the waterproof membrane helps stabilize indoor temperatures, reducing the need for heating and cooling. This stability is compromised if the waterproofing layer fails, allowing moisture to penetrate the insulation and reduce its effectiveness. Wet insulation conducts heat more efficiently than dry insulation, leading to increased energy costs. Proper waterproofing prevents this scenario, maintaining the insulation’s effectiveness and contributing to overall energy savings. Waterproofing also plays a crucial role in maintaining a healthy indoor environment by preventing moisture from entering the building. Moisture is a leading cause of mold and mildew growth, which can degrade indoor air quality and pose health risks to occupants. Effective waterproofing helps

ensure that interior spaces remain dry and free from mold, contributing to a healthier environment for residents and workers.

Investing in effective waterproofing for an inverted roof is cost-effective over the building's lifespan. It reduces the need for frequent maintenance and repairs due to moisture damage and extends the life of roof components. Choosing ALCHIMICA's waterproofing products is an investment in the future. The initial cost is offset by the reduced need for maintenance and the extended lifespan of roofing components. These long-term savings, coupled with the enhanced energy efficiency provided by effective insulation, make ALCHIMICA's solutions a cost-effective choice for any project. Furthermore, robust waterproofing practices ensure compliance with building codes and regulations, which aim to uphold safety standards and protect property values. Waterproofing in non-exposed or inverted insulation roofs is a critical component that impacts the structural integrity, energy efficiency, and overall health of building environments. Prioritizing high-quality waterproofing solutions is essential to protect investments and ensure that buildings are safe, sustainable, and durable. With the complexity of these roofing systems, the importance of effective waterproofing cannot be overstated. ALCHIMICA's range of waterproofing membranes is specially designed to form a seamless and durable barrier against water penetration. These membranes ensure the longevity and structural integrity of any roofing system, particularly in inverted roof configurations where the waterproofing layer is crucially positioned beneath the insulation. This strategic placement shields the membrane from environmental stressors such as UV radiation, physical damage, and thermal shocks, significantly extending its operational lifespan.

The effectiveness of waterproofing inverted insulation roofs is pivotal for multiple reasons. It serves as a barrier that prevents water damage to structural elements, enhances the longevity of roof components, ensures energy efficiency by maintaining the insulative properties of the roof, and contributes to a healthier indoor environment by preventing mold growth. Moreover, the economic benefits of effective waterproofing, including reduced maintenance costs and compliance with regulatory standards, make it a wise investment for any construction project. Proper waterproofing is not merely a technical requirement; it is a crucial element that determines the overall performance, safety, and sustainability of inverted roofing systems. Choosing ALCHIMICA for your non-exposed or inverted insulation roof waterproofing projects means investing in a system that offers robust protection, enhances building efficiency, and aligns with sustainable building practices. Their proven track record and innovative approach to waterproofing make ALCHIMICA the ideal partner for ensuring your roofing projects is successful and enduring. With ALCHIMICA, you are not just choosing a waterproofing solution; you are choosing a future of security and sustainability for your structures.

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.

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.

INVERTED INSULATION ROOFS

Inverted insulation roofs represent roofing technology where the insulation layer is placed above the waterproofing membrane, contrasting with traditional setups where insulation resides below the membrane. This configuration offers several advantages, primarily protecting the waterproofing layer from thermal shock, UV radiation, and mechanical damage, thus prolonging its functional life. The use of inverted insulation roofs is particularly prevalent

in buildings requiring additional thermal resistance. This roofing type is adaptable to various climatic conditions, making it a versatile choice for a wide range of building projects.

There are several types of inverted insulation roofs, each defined by the materials used as the insulating layer. Extruded polystyrene (XPS) is commonly preferred due to its high compressive strength and resistance to water absorption. Other materials like expanded polystyrene (EPS) and cellular glass are also used based on structural requirements and budget considerations.

Additionally, the design flexibility of inverted insulation roofs allows for the adjustment of the protection layer above the thermal insulation system. Common materials used for this layer include aggregate ballast, roof tiles, or cement screed. This variety offers architects and builders the versatility to customize the final aesthetic of the roof according to the building's architectural style or functional requirements. Whether opting for the natural look of stone ballast or a more refined finish with roof tiles, the protection layer not only enhances the roof's appearance but also plays a critical role in shielding the insulation from physical damage and exposure to the elements.

The benefits of inverted insulation roofs include enhanced durability of roofing components, improved thermal performance, and reduced energy costs. However, the success of these roofs heavily relies on the quality of the waterproofing materials used. High-performing waterproofing is crucial to prevent water ingress that can lead to costly repairs and maintenance issues. Selecting high performance with long expected working life (w3) waterproofing materials ensures that the roof can withstand environmental stressors and provide reliable protection against leaks for an extending time, preventing frequent repair costs.

In conclusion, while inverted insulation roofs offer significant advantages, the choice of waterproofing materials is vital. Investing in high-quality waterproofing not only secures the building's integrity but also optimizes the roof's overall performance and sustainability. Careful selection of these materials, paired with professional installation, can mitigate potential future repair costs and extend the lifespan of the roofing system.

FROM ETAG 005 (PART 1&6) TO EAD 030350-00-0402

ETAG 005 is a European technical guideline for liquid-applied roof waterproofing systems (kits). The ETAG 005 outlines specific stipulations for liquid-applied roof waterproofing kits based on polymer-modified bitumen emulsions and solutions, glass-reinforced resilient unsaturated polyester, flexible unsaturated polyester, hot-applied polymer-modified bitumen, polyurethane, bitumen emulsions and solutions, and water dispensable polymers. These guidelines aim to ensure the safety and effectiveness of roof waterproofing systems. Since the LARWKs (Liquid Applied Roof Waterproofing Kits) are based on different materials, which might necessitate additional specific verification and/or assessment, the kits are divided into families of products, dealt with in Complementary Parts. Part 1 provides general requirements for the assessment of liquid-applied roof

waterproofing kits and Part 6 is a complementary part of ETAG 005 that specifies specific stipulations for kits based on polyurethane.

The ETAG 005 has been replaced by EAD 030350-00-0402 which is a European Assessment Document for Liquid Applied Roof Waterproofing Kits (LARWK). EADs are more comprehensive than ETAGs and provide a more detailed assessment of construction products. EADs are intended to be used as a basis for issuing European Technical Assessments (ETAs).

The EAD 030350-00-0402 specifies the essential characteristics and relevant assessment methods and criteria for LARWKs. It also provides information on the intended use(s) of the construction product, working life/durability, and specific terms used in the EAD. It outlines the methods and criteria for evaluating a product's performance based on essential characteristics such as external fire performance, reaction to fire, content, emission, and/or release of dangerous substances, resistance to water vapor, watertightness, resistance to wind loads, resistance to mechanical damage (perforation), resistance to fatigue movement, resistance to the effects of low and high surface temperatures, resistance to ageing media, resistance to plant roots, effects of variations in kit components and site practices, effects of day joints, and slipperiness and more.

By choosing a LARWK that is certified according to EAD 030350-00-0402, you can be confident that the product meets the required EU standards and provides long-term protection against water penetration, thus extending the roof's service life.

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).

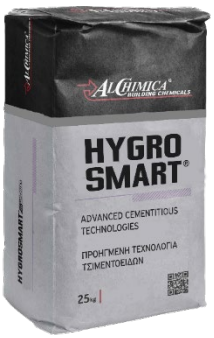
HYGRO SMART® SYSTEM Advanced Cementitious Technologies

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**).



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	-	-

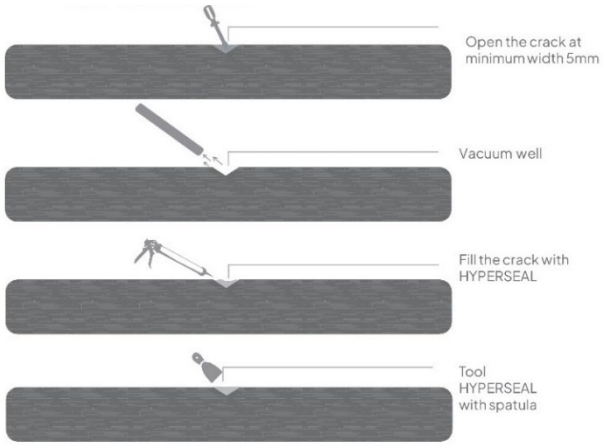
ALCHIMICA's primers are designed to secure your waterproofing application in every substrate by strengthening the substrate, stabilizing, and sealing it, offering remarkable adhesion with their respective main membranes and sealants.

SEALING SOLUTIONS

HYPERSEAL®-EXPERT-150 is a low-modulus expansion and construction joints PU sealant designed to ensure a bubble-free cure even in high temperature and humidity conditions. It exhibits excellent thixotropy, making it suitable for large expansion joints. The ratio width to depth should be 2:1 subject to a minimum depth of 10mm. It cures by reacting with atmospheric humidity, producing a joint sealant with a 50% joint movement accommodation factor, elongation >700% (ASTM D412 / EN-ISO-527-3), and excellent adhesion to a variety of substrates (Adhesion to concrete >20 kg/cm^2 (>2 N/mm^2) ASTM D4541) with or without the use of special primers. The sealant's extrusion rate and tooling remain consistent across various temperature and humidity conditions. HYPERSEAL®-EXPERT-150 is CE certified according to EN 15651-1:2012 (Sealants for Facades) and 15651-4:2012 (Sealants for Floor Joints with Foot traffic). HYPERSEAL®-EXPERT-150 is a highly flexible PU sealant, with elastic recovery of >70% (EN ISO 7389) allowing for the movement and expansion of structure components, preventing cracks, and ensuring a lasting seal. It adheres to various substrates, making it durable and able to withstand harsh environmental conditions and heavy traffic loads. As a PU sealant, it is also chemically resistant, protecting the structure from corrosion. Because of its excellent chemical and hydrolysis resistance, it is widely used for sealing joints in swimming pools and chemically treated

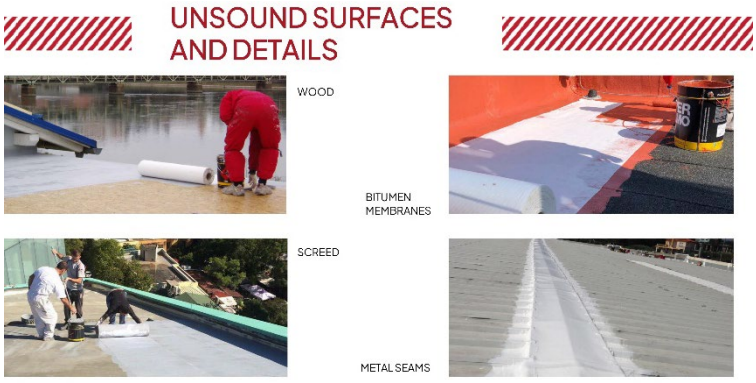
water environments. HYPERSEAL®-EXPERT-150 provides excellent waterproofing, preventing moisture ingress, and has high elasticity, allowing for flexibility and elasticity. It does not shrink as it cures, ensuring no gaps or openings in the sealed joint. Its excellent heat resistance makes it suitable for application where exposure to temperatures >60°C takes place and its resistance to cold allows the sealant to remain elastic even down to -40°C (service temperature range -40 to +80°C). It has tack free time (@ 77°F (25°C) & 55% RH) of 2.5-3.5 hours and a cure rate of 2-3 mm/day, low VOC content, and remains resistant and unaffected by microorganisms, fungi, and algae growth, making it the most versatile PU sealant, usable in a variety of applications.

HYPERSEAL®-EXPERT-150 is available in various colors and compatible with a wide range of construction materials in general. Can be easily applied using standard caulking or gun techniques.



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® 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® 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

METHOD STATEMENT

INVERTED INSULATION AND WATERPROOFING SYSTEM BASED ON HYPERDESMO® SYSTEM

The waterproofing solution increases both the efficiency of a building and protects a roof as a complete solution because it combines the thermal insulation and the waterproofing application. ALCHIMICA provides advanced waterproofing solutions for non-exposed projects ensuring exceptional protection and longevity in high-performance applications. The system is based on the HYPERDESMO® System, that offers high-performance waterproofing with a CE certification for an expected working life of 25 years. Additionally, it supports the development of cooler and healthier environments with better air quality, mitigating the urban heat island phenomenon.

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 roofs.

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:

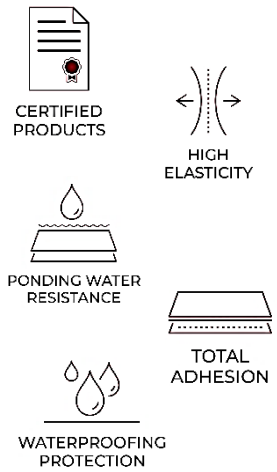
Testing the products to be used in this build-up application on the specific substrate and conducting mock-up tests are essential steps to ensure good adhesion. Mock-up tests replicate real-world conditions and provide a practical way to evaluate the performance of the products in situ. Pull-out tests 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. ANGLE FILLET	HYGROSMART-BUILDING-F HYGROSMART-BILDING-45-THIXO HYGROSMART-FIX&FINISH	Subject to project needs
2. PRIMER	AQUASMART-DUR MICROSEALER-50 GEODESMO-50	200-400 gr/m^2 Subject to porosity
3. SEALING	HYPERSEAL-EXPERT-150	Subject to project needs
4. MAIN MEMBRANE	HYPERDESMO SYSTEM	Total consumption: 1.6 - 2 kg/m^2
5. PROTECTION GEOTEXTILE	GEOTEXTILE-45/50 PRESSED	Subject to project needs
6. THERMAL INSULATION	INSULATION BOARDS (XPS, EPS, CELLULAR GLASS)	Subject to area coverage
7. PROTECTION GEOTEXTILE	GEOTEXTILE-45/50 PRESSED	Subject to project needs
8. PROTECTION FINISH OPTIONS	AGGREGATE BALLAST ROOF TILES CEMENT SCREED	Subject to area coverage



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 a 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.

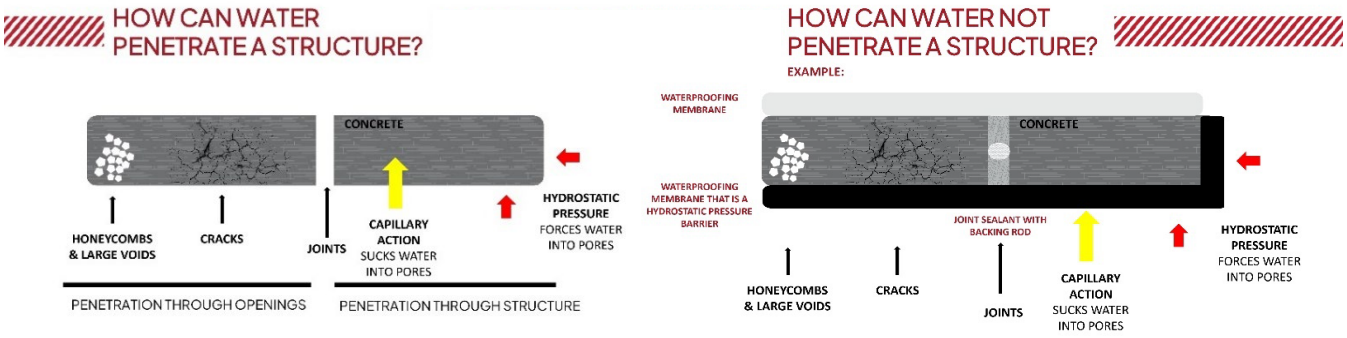
Notes:

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 small gaps in structures designed to prevent cracks, absorb stresses, and allow soil movement. They allow independent movement and thermal expansion without inducing stress. Concrete is susceptible to cracks due to its non-elastic nature, so joints are strategically placed to prevent failure. However, structures with expansion joints are susceptible to water leaks, so waterproofing and applying a durable sealant are essential to maintain flexibility and allow the joint to function properly. All dilatation joints, inner angles, wall-floor

connections, cracks, drainage details, pipes, and other elements of equipment mechanically installed on a roof (air conditioning, antennas, photovoltaic systems, etc.) must be treated.



Dilatation joints and inner angles should be treated with HYPERSEAL®-EXPERT-150 or HYPERSEAL®-25LM-S, polyurethane based sealants.

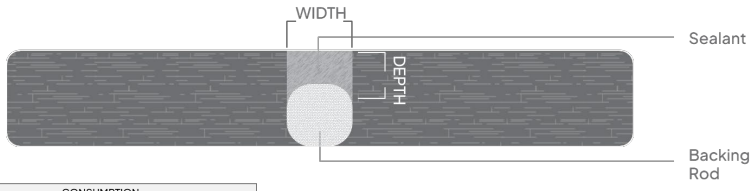
Clean joints thoroughly, and ensure that no dust, oil, grease, wax contaminants, or silicone remains are present. For many applications, primer is not obligatory. However, in case of application on porous or/and wet substrate the primer is required, as there is a possibility of air bubbles blown into the uncured sealant if the substrate temperature rises.

After the primer is cured, apply in dilatation joints the right backing material (where needed) – an open cell polyurethane or a closed cell polyethylene backing rod. Be sure that when applying a closed cell polyethylene backing rod, its outer skin is not punctured, as rising temperature may cause bubbles. Backing rod application is important as it ensures the correct width-to-depth ratio and provides a firm backing against which the sealant can be tooled off. Apply the sealant HYPERSEAL®-EXPERT-150 or HYPERSEAL® 25 LM-S.

■ HYPERSEAL®-EXPERT-150 is a low modulus sealant, formulated to ensure bubble free cure even at very high temperatures and humidity climatic conditions. The product displays excellent thixotropy allowing its use even in

very large expansion joints. It cures by reaction with atmospheric humidity to produce a joint sealant with a 50% joint movement accommodation factor and excellent adhesion on many types of substrates (concrete, fibrous cement, mosaic, cement roof tiles, wood, also glass, aluminum, steel, polycarbonate, etc.). The extrusion rate and tooling of the sealant remain the same throughout a very wide range of temperature and humidity conditions.

■ HYPERSEAL® 25LM-S is a low modulus expansion joint sealant. It has been modified in order to give enhanced thixotropic properties. It cures by reaction with atmospheric humidity to produce a joint sealant with a 50% joint movement accommodation factor and excellent adhesion on substrates traditionally problematic for PU sealants, e.g. glass, aluminum, steel, polycarbonate, etc. Additionally, the sealant has been modified in order to have an extrusion profile identical to hybrid PU or MS technology. The extrusion rate and tooling of the sealant remain the same throughout a very wide range of temperature and humidity conditions. The sealant is easy to apply even in very low temperatures.



CONSUMPTION					
WIDTH / DEPTH	5mm	10mm	15mm	20mm	25mm
5mm	24	12			
10mm			4	3	2,4
15mm					1,6

- Width # depth ratio 2/1
- Minimum width size 5mm

Slide the sealant HYPERSEAL®-EXPERT-150 or HYPERSEAL® 25 LM-S into the sealant dispensing gun, cut off the very end of the sealant packaging, and fit the gun with the nozzle. The nozzle should be cut to deliver the right bead size. Extrude the sealant into the joint ensuring that no air is trapped in the joint. Tooling is recommended immediately after the application of sealant. The ratio width to depth should be 2:1 subject to a maximum depth of 25mm.

NOTE:

- Tool the sealant with a spatula.
- Do not use any solvent, alcohol, or soap to smooth the material.

POLYETHYLENE BACKER ROD

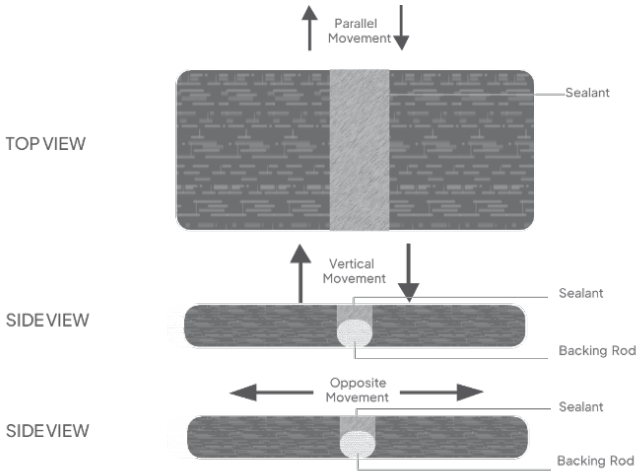
Special backer rod made of extruded polyethylene for joints where HYPERSEAL® sealants will be used.

SIZE	PACKAGING
F6	1500m
F10	680m
F15	250m
F20	180m
F25	100m
F30	100m
F40	100TEM
F50	65TEM

TREATMENT OF DETAILS

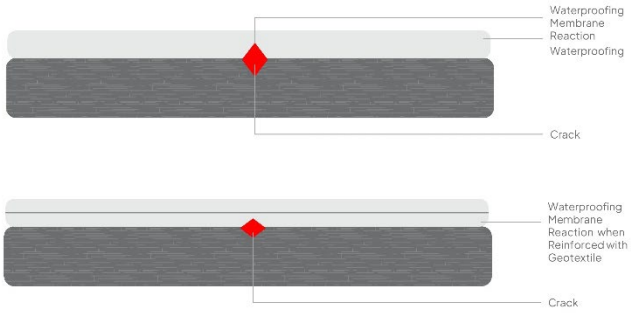
All connections, cracks, drainage details, pipes, and other elements of equipment mechanically installed on a roof (air conditioning, antennas, photovoltaic systems, etc.) should be treated. Select the preferable treatment using sealants HYPERSEAL®-EXPERT-150, HYPERSEAL® 25LM-S, or/and HYPERDESMO® System with GEOTEXTILE, or/and HYPERDESMO®-PARTICULAR.

Clean details and cracks thoroughly, and ensure that no dust, oil, grease, wax contaminants, or 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 sealant if the substrate temperature rises. Select a suitable primer according to the substrate type and needs.



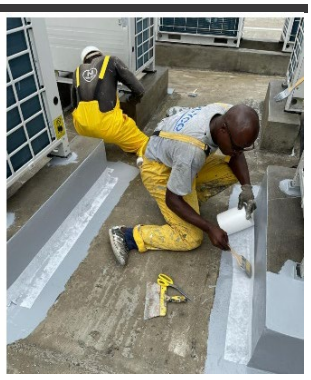
Dilatation joints, inner angles, and small cracks should be treated with HYPERSEAL®-EXPERT- 150 polyurethane-based sealant or any other suitable HYPERSEAL® sealant as described above.

THICKNESS OR TENSILE STRENGTH



Choose one of the following methods, depending on your preference and needs:

TREATMENT WITH REINFORCEMENT: HYPERDESMO® SYSTEM with GEOTEXTILE.



Cracks and details can also be treated by application of HYPERDESMO® System with GEOTEXTILE reinforcement. When the primer is fully cured, treat the details with HYPERDESMO® SYSTEM 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.

FIBER-REINFORCED PU: HYPERDESMO®-PARTICULAR.

This is an alternative option when application of HYPERDESMO® System with GEOTEXTILE is difficult. HYPERDESMO®-PARTICULAR is a thixotropic and fiber-reinforced, one component polyurethane liquid membrane used for waterproofing and protection of roof detail structures. Due to its unique formulation, it cures rapidly to form a bubble free thick layer membrane with excellent mechanical properties. HYPERDESMO®-PARTICULAR is an effective sealing material for the treatment of installation details on roofs, such as chimneys, pipes, photovoltaic systems, air-conditioning units, and gutters. This product is ideal for usage during the winter months or in climates with relatively low humidity.

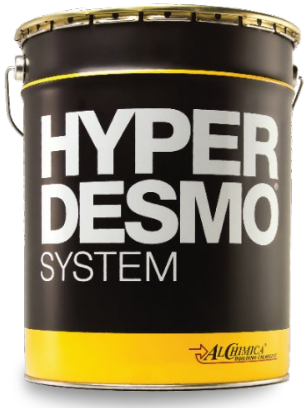
Apply the material with a spatula or a brush with the consumption required to fill in the gaps, but with a thickness of no more than 2 mm. It can be applied as the only sealing material as well as together with HYPERSEAL®-EXPERT-150 or HYPERSEAL® 25 LM-S. In this case, the depth is filled in with sealant HYPERSEAL®-EXPERT-150, and then the irregularities on the top part are treated with thixotropic HYPERDESMO®-PARTICULAR.

NOTE:

- Clean tools and equipment first with a paper towel and then using SOLVENT-01.

MAIN WATERPROOFING MEMBRANE

The HYPERDESMO® System is a single-component polyurethane membrane with excellent mechanical, chemical, thermal, and natural element resistance properties. It is suitable for exposed waterproofing applications like concrete roofs, metal roofs, and bitumen membrane refurbishment. The system is the only polyurethane liquid membrane in the world with CE certification at a thickness of 1.2mm without reinforcement. It has excellent adhesion, UV, and thermal resistance, and can achieve over 82% solar reflectance in white. It remains elastic even at -40°C and high temperatures up to +90°C. The system is non-toxic after full cure, has good chemical resistance, and is resistant to hydrolysis. Select the suitable version of HYPERDESMO® for your project requirement that meets your needs.

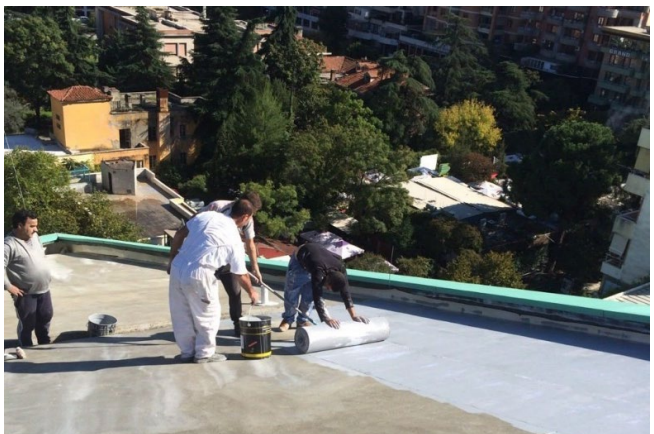


HYPERDESMO® SYSTEM	
CONSUMPTION	1.5-1.8 kg/m²
APPLICATIONS METHODS	brush, roller, airless spraying
TACK FREE TIME, @ 77 ºF (25ºC) & 55% RH	4-6 Hours
APPLICATION OVER PREVIOUS COAT (PRIMER)	Depending on the primer curing time
RECOAT TIME OF PRODUCT	6-24 Hours
NEXT COAT TIME (TOPCOAT)	6-24 Hours
ADDITIVES	• THIXO-TOOL • ACCELERATOR-300A CHECK THE TDS FOR COMPATIBILITY
COLORS	WHITE, GREY, TEJA
COMPONENTS	SINGLE COMPONENT

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

TYPES OF APPLICATIONS

APPLICATION BY COATS	- First coat: 0.7-0.9 kg/m^2. - Second coat: 0.8-0.9 kg/m^2. Apply more coats depending on traffic requirements and system build-up. - Minimum total consumption: 1.5-1.8 kg/m^2.
APPLICATION WITH REINFORCEMENT ✓ GEOTEXTILE ✓ FIBER TEXTILE	You apply the 1st coat of HYPERDESMO® SYSTEM with a minimum consumption of 0.8 kg/m^2. When HYPERDESMO® System is still wet, you apply the reinforcement (GEOTEXTILE-50 PRESSED (non-woven geotextile of 50gr/m^2)). As soon as HYPERDESMO® SYSTEM 1st coat cures, application of the 2nd coat of HYPERDESMO® SYSTEM, with a minimum consumption of 0.8 kg/m^2 takes place.
SINGLE COAT APPLICATION	HYPERDESMO® SYSTEM can be applied in only 1 single coat, with a maximum consumption of up to 2kg/m^2 if you add ACCELERATOR-3000A to HYPERDESMO®. For more details refer to the ADDITIVES section below. NOTE: Adding an accelerator decreases the curing time as well as the pot life of HYPERDESMO®.
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. The use of an airless spray machine is not recommended when ACCELERATOR-3000A is added to the material.



PROTECTION GEOTEXTILE

After completing the roof waterproofing, a protective layer must be applied before adding the thermal installation. Apply GEOTEXTILE 50/45 PRESSED to the whole surface. The geotextile serves to safeguard the waterproof membrane and acts as an intermediate protective layer. The geotextile should be applied over the entire surface above the waterproofing system to ensure the integrity of the waterproofing membrane is maintained and protected.

THERMAL INSULATION

Utilizing insulation boards such as EPS (Expanded Polystyrene) or XPS (Extruded Polystyrene) or CELLULAR GLASS in conjunction with HYPERDESMO® products helps to improve thermal insulation, creating a more energy-efficient building. These boards are typically installed directly on the roof structure over the protective geotextile and the waterproofing membrane to shield the insulation from environmental factors and to enhance its thermal resistance.

PROTECTION GEOTEXTILE

After the roof's thermal insulation is in place, it is crucial to apply a protective layer to secure the integrity of the system during subsequent construction phases. For this purpose, GEOTEXTILE 50/45 PRESSED should be applied to the entire surface of the roof. This geotextile acts as an intermediate protective layer, safeguarding the thermal insulation beneath it from potential damage. Once the geotextile is securely installed, a final layer of protection can be applied. Options for this top layer include aggregate ballast, cement screed, or roof tiles, each offering a different aesthetic finish and additional durability to the roofing system. This multi-layered approach ensures the roof’s longevity and effectiveness in protecting the building from environmental elements.

AESTHETIC FINISH OPTIONS

Each of these finishing options provides a unique look and functional benefits, allowing for customization according to the building's design requirements and aesthetic preferences.

CEMENT SCREED

Once the GEOTEXTILE 50/45 PRESSED layer is secured, a layer of cement screed can be applied over it. This provides a durable and even surface that not only enhances the structural integrity of the roof but also contributes to its overall aesthetic. The cement screed is ideal for settings where a smooth, flat surface is preferred.

AGGREGATE BALAST

Applying aggregate ballast over the geotextile layer is another viable option for finishing the roof. The ballast serves as a heavy-duty protective layer that also aids in water drainage and adds a natural, textured look to the roof's appearance.

ROOF TILES

For a more traditional or decorative finish, roof tiles can be used. These are placed over the geotextile layer, offering a classic aesthetic that complements various architectural styles. Roof tiles not only provide visual appeal but also enhance the roof’s ability to resist environmental elements.

ALCHIMICA's approach to waterproofing systems is fundamentally centered around customization, enabling civil engineers and construction experts to select and tailor solutions according to their specific project needs and structural specifications. This versatile strategy ensures that each component of the waterproofing system aligns perfectly with the unique demands of each construction project. By facilitating a bespoke application of their products, ALCHIMICA enhances not only the water and environmental resistance of roofs but also significantly improves the overall integrity and longevity of the structure. This adaptable approach allows professionals in the field to effectively address a wide range of structural challenges, ensuring that ALCHIMICA’s solutions deliver optimal performance and durability.

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.

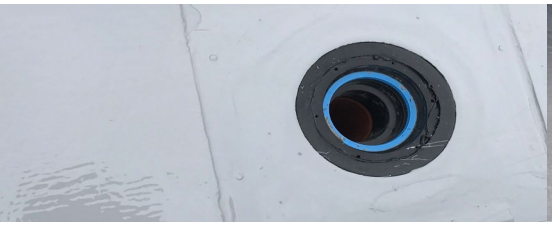
REPAIR AND OVERLAPS PROCESSES

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 MICROSEALER-50 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 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®.
- OPTION 2: solvent wipe the whole area with SOLVENT-01, let it dry, and then apply AQUASMART-DUR primer at 50-80gr/m^2 in order to secure adhesion. After 3-6h 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

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 **INVERTED INSULATION AND WATERPROOFING SYSTEM BASED ON HYPERDESMO® 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.

- All the above written and provided is subject to the terms and conditions of sale and marketing of ALCHIMICA S.A.

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