DAMSURE
TECHNICAL SERVICES

Profile

Professionalisam is our success...

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DAMSURE
TECHNICAL SERVICES

Our Sister Concerns

1. **HIGH TOWER INSULATIONS.**
   Al Nakheel - RAK- UAE.
   +971 55 93 73 83 4.

2. **HIGH TOWER BUILDING CONTRACTING.**
   Al Nakheel- RAK- UAE.
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3. **AL EKAM INSULATION AND PAINTING CONTRACTING.**
   Al Qussaidath- RAK- UAE.
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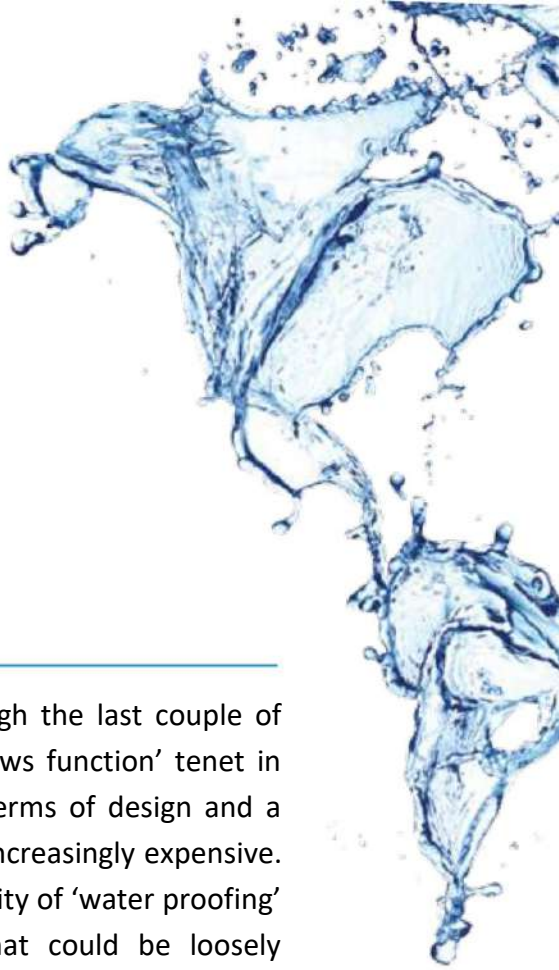
4. **AL EKAM BUILDING MATERIALS.**
   Al Julphar- RAK- UAE.
   +971 52 72 71 337.

5. **AL EKAM CERAMICS.**
   Al Julphar- RAK- UAE.
   +971 55 93 73 83 4.



OUTLINE

The Development of Waterproofing Practices & Materials

The evolution of the sloping roof towards the flat roof through the last couple of centuries was necessitated by the elements of the 'form follows function' tenet in architecture. For one, this provided architectural latitude in terms of design and a more optimized utilization of urban space that was becoming increasingly expensive. It was greatly augmented be the rapid expansion in the availability of 'water proofing' material such as pitch and bitumen, with the activities that could be loosely associated with the development of mining techniques during the Industrial Revolution.

Both the above material was widely used for water proofing in spite of great differences in their origin and their composition. The sloping roof comprised of a large number of disjointed water proof elements (such as tiles or slate) and depends on gravity to ensure that the water flowed down from the one element to the next. The flat roof, initially, had several areas weakness in terms of permeability, such as the joints between the stones and the crack developed in the hardened material such as lime or clay. These weak areas were sealed with pitch and bitumen mixed with stops one powders. Gradually, a whole layer of waterproofing came to be provided as a preventive measure, rather than a maintenance procedure.

In time, however, the water proofing was reinforced with fabrics of hemp and cotton fibers to give it adequate mechanical properties. In - situ practices later gave way to factory made rolls of water proofing materials, which could be easily be transported and affixed at site. Organic and natural fibers used as reinforcement slowly where replaced by non-biodegradable materials such as fiberglass and in the 70s with polyester mats. Similarly, the environmental hazards associated with coal tar and its 1products paved the way for wide spreads use of bitumen on field of waterproofing. Many different polymers were later added to the bitumen to alter its mechanical properties such as brittleness over time, resistance to heat and cold, etc.

PROFILE

DAMSURE TECHNICAL SERVICES is a professionally managed concern catering to the burgeoning demand in the U.A.E market for the reliable service and consultancy in the field of building insulation. The construction boom and continuing expansion programmed of the entities have sustained the growth of the industry as well as the company and today we command a major presence in the highly competitive market. Our client list includes a large number of constructing companies and consultants.

The guiding philosophy behind the existence of the company is to make available to our customer product and services of commendable with strict adherence to time scheduled and technical specifications, at prices that offer better value for money. The main activity undertaken by the company includes offering total solutions to a host of water proofing and thermal insulation problems encountered in the construction industry. Our team of civil engineers and chemical engineers offer active consultancy services in the above-mentioned fields. In order to main exacting quality material that meet all prescribed technical specifications are utilized in the execution of each of our projects. Based on the requirement, we execute both membranous as well as liquid based insulation systems. Over the years, we have gained considerable technical expertise in Ataxic in Polypropylene (APP) membranes, Styrene Butadiene Styrene (SBS) membranes for structures, acrylics, cementations and fib rated liquid systems. The state-of-the-art foam concreting machines optimizes cement consumption while maintaining specified density ranges between (400-600kg /m2). A highly professional team of engineers and managers complimented by a skilled and experienced labor force ensures that high technical standards are maintained and that time schedules are adhered to in the execution of all our projects. It is therefore no surprise that's our customers have a high regard for our work.

Our professional team provides perfect solution for water proofing and thermal insulation requirement of all types of roof, which include is RCC Flat Roof and Metal Roof. We offer quality assured, Sustainable solutions for your roof Systems and solutions offered by supreme team meet the all standards of thermal insulations. We provide solutions which are complying with the requirements of sustainability. Our technical team can work with your design team and offer them with all the technical assistance of meet your specific requirements related to roof waterproofing, basement, wet area waterproofing GRP lining and thermal insulation.

Our Vision and Mission

OUR VISION

To provide quality services to clients using the best technology available, at fair market competitive prices to understand the needs of the customer and to ensure 100% customer satisfaction to establish a “hup port” Service provider in the UAE to refine services in ordered to achieve a common goal.

MISSION OF STATEMENT

DAMSURE TECHNICAL SERVICES is a leader in providing services that are not only fair and market competitive prices to our customers but to serve them which other’s fail to understand, creating a successful partnership in highest level of quality services by committing in providing the highest level of professionalism, service response and quality workmanship.

OUR POLICY

OUR GREATEST ASSET- OUR PEOPLE

From the very beginning, we set stringent measures for recruiting and cultivating new talent to ensure our clients only deal with the highest quality and most qualified professionals throughout their experience working with Supreme. We also invest a vast amount of resources in training our people to become more knowledgeable about their respective field(s), which ultimately, leads to superior service, efficient finances, and timely delivery.

WE'RE VERSATILE- WE CAN DO MORE FOR YOU

Another key factor that helps differentiate Supreme from our competitors is the varying scopes of work that we can perform; in fact, we can perform all of the scopes of work. Because there are fewer people and processes involved, our customers will benefit from a seamless experience that spans many scopes of work without having to leave us.

EFFICIENT PROJECT SUPERVISION -ENSURING QUALITY AND TIMELINESS

At DAMSURE, we believe that jobsite supervision is fundamental to having a financially successful project. That's why we have non-working superintendents who manage field personnel at each of our sites to ensure quality installation. We strive to have one non-working superintendent for every 5-10 field labors. Our commitment to quality, efficiency, and timeliness has played a vital role in our growth over the last 20 years.

HEALTH & SAFETY POLICY

Our safety policy ensures not only the protection of our employees, but also our sub-contractor, customers, and the community as a whole in which we operate.

At DAMSURE, safety is a primary concern and priority. The company is fully committed to integrate safety measures in its waterproofing treatment i.e. comprehensive risk assessment & coordinated safety action plans are in place throughout the construction process.

The company's safety policy is implemented rigorously in every project which ensures:

- A safe working environment which is continuously improved with new safer methods of operation.
- Employees and sub-contractors are up to date with the safety hazards, rules and regulations.
- All applicable rules, regulations, and procedures are carried out with best practices and principle.
- Pre-bid safety review of site hazards and construction techniques.
- Every day morning safety review and pre-planning with foremen and other crew members.
- Employee training through workshops and seminars, which includes weekly toolbox talks.

Chairman's Message

Since the establishment of **DAMSURE TECHNICAL SERVICES** in 2010, the company has been able to excel in values and concepts in the waterproofing sector.

The basic principle governing the work of DAMSURE TECHNICAL SERVICES Company is " **Professionalism** ", which is the common denominator in consistently keeping our promise to our customers, partners and employees.

Today, across the world, business development models are being reshaped and economic and innovation cycles are shrinking. Companies that do not respond to these changes risk being exposed to irrevocable risks that affect their long-term prospects.

Our company has the future in mind, with a vision to pursue in accordance with the Capabilities that we have and our vision to be one of the leading companies with a significant presence in the waterproofing market of Middle East as well as the waterproofing market in UAE. Our task and mission to create sustainable growth and profits are excellent for our customers and to achieve this we are investing in the best qualified waterproofing by employing the best human elements, use the latest technology, to pursue the best methods of work in order to achieve our vision and our goals and will continue to satisfy customers and their aspirations at the forefront of our strategies. We are sharpening our strategy to be one of the world's most valuable, most innovative and most admired companies.

Mohamed Azad Meleveetil

AREAS OF SPECIALIZATION

Combo Roofing System

Cementitous Waterproofing

Waterproofing Membranes

GRP Lining

Thermal Insulation

Wet Area Waterproofing

Light Weight Concrete System

Painting

Industrial & Floor Coating

COMBO ROOF SYSTEM

The life of the building could very much depend on the quality and integrity of the roof. The ability of a roof to perform effectively on a long-term basis depends on the quality of material, design of the roofing system and quality of workmanship. The extreme heat in the Middle East demands excellent insulation to prevent energy wastage. The Combo Roofing System does just that, with a saving of over 40% in energy. It also provides for a perfect waterproofing thus making it the ideal and cost-effective system.

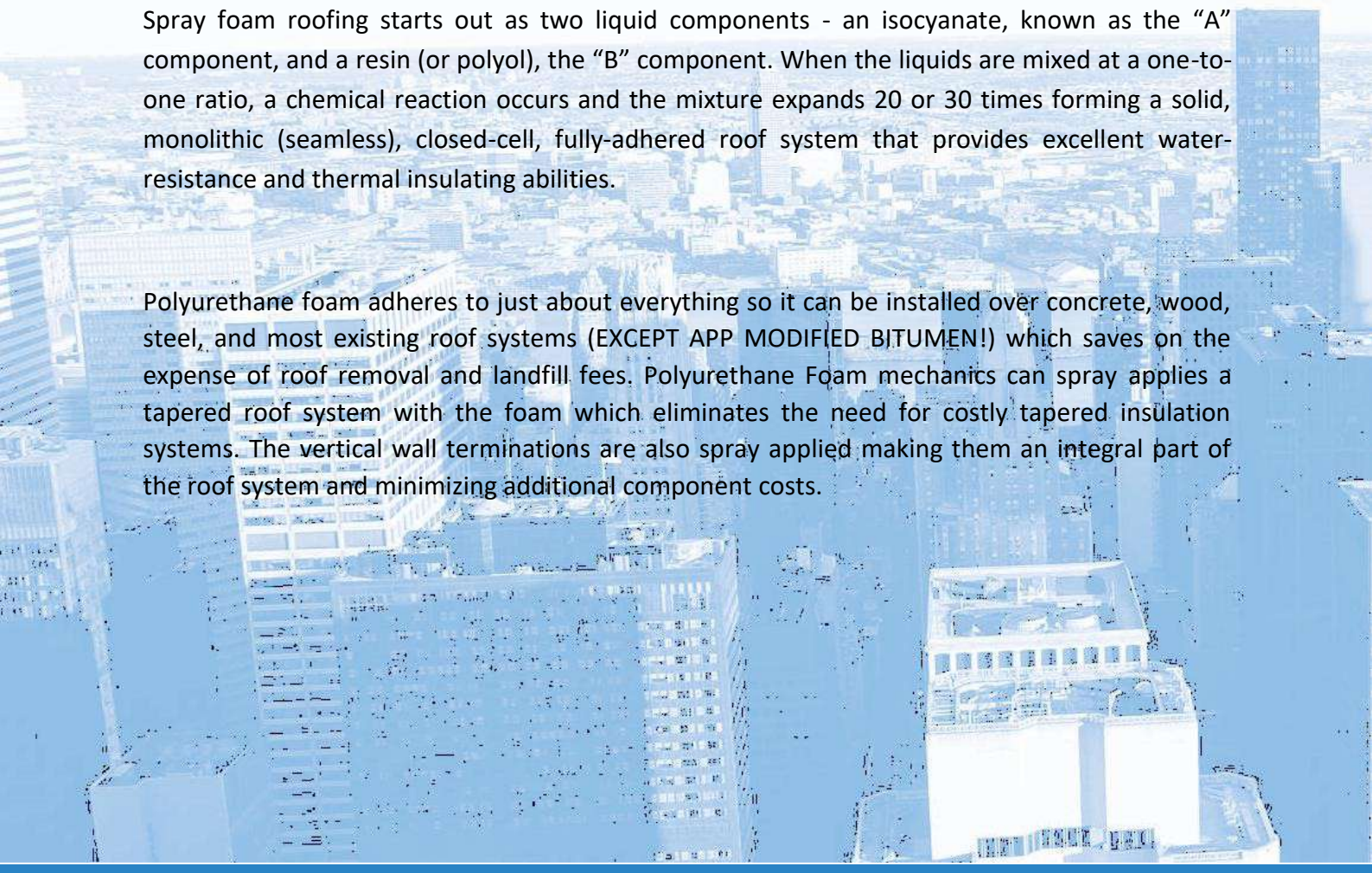
Combo Roof is a comprehensive system comprising of waterproofing, thermal insulation and finishing for the roof. This unique system is a technically advanced fast curing.

This system provides a manufacturer's Guarantee of 25 years against any leakage the system meets all latest thermal insulation standards and regulations in UAE and is accepted by all major property developers, consultants and contractors.

The system is also approved by various authorities, consultants & contractors; Combo Roof system is an assured solution for your roof.

Spray foam roofing starts out as two liquid components - an isocyanate, known as the "A" component, and a resin (or polyol), the "B" component. When the liquids are mixed at a one-to-one ratio, a chemical reaction occurs and the mixture expands 20 or 30 times forming a solid, monolithic (seamless), closed-cell, fully-adhered roof system that provides excellent water-resistance and thermal insulating abilities.

Polyurethane foam adheres to just about everything so it can be installed over concrete, wood, steel, and most existing roof systems (EXCEPT APP MODIFIED BITUMEN!) which saves on the expense of roof removal and landfill fees. Polyurethane Foam mechanics can spray applies a tapered roof system with the foam which eliminates the need for costly tapered insulation systems. The vertical wall terminations are also spray applied making them an integral part of the roof system and minimizing additional component costs.



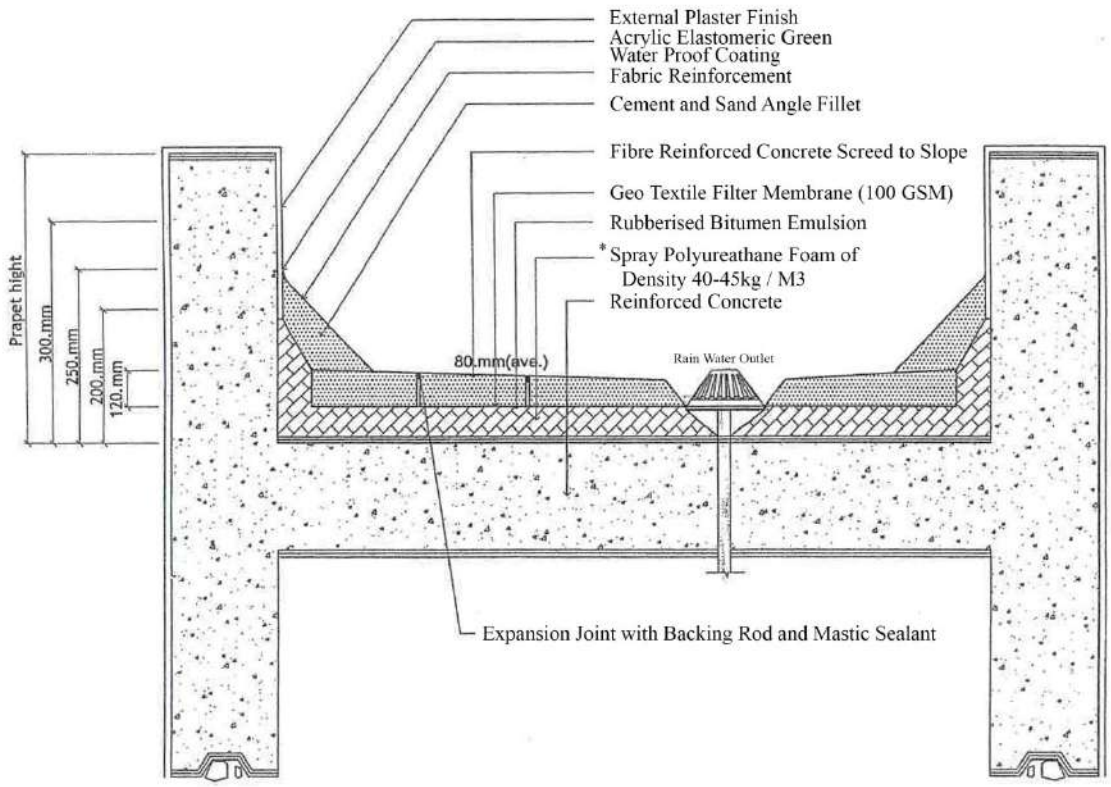
COMBO ROOF SYSTEM

The Process Description

The roofing contractor will be responsible for the following procedures.

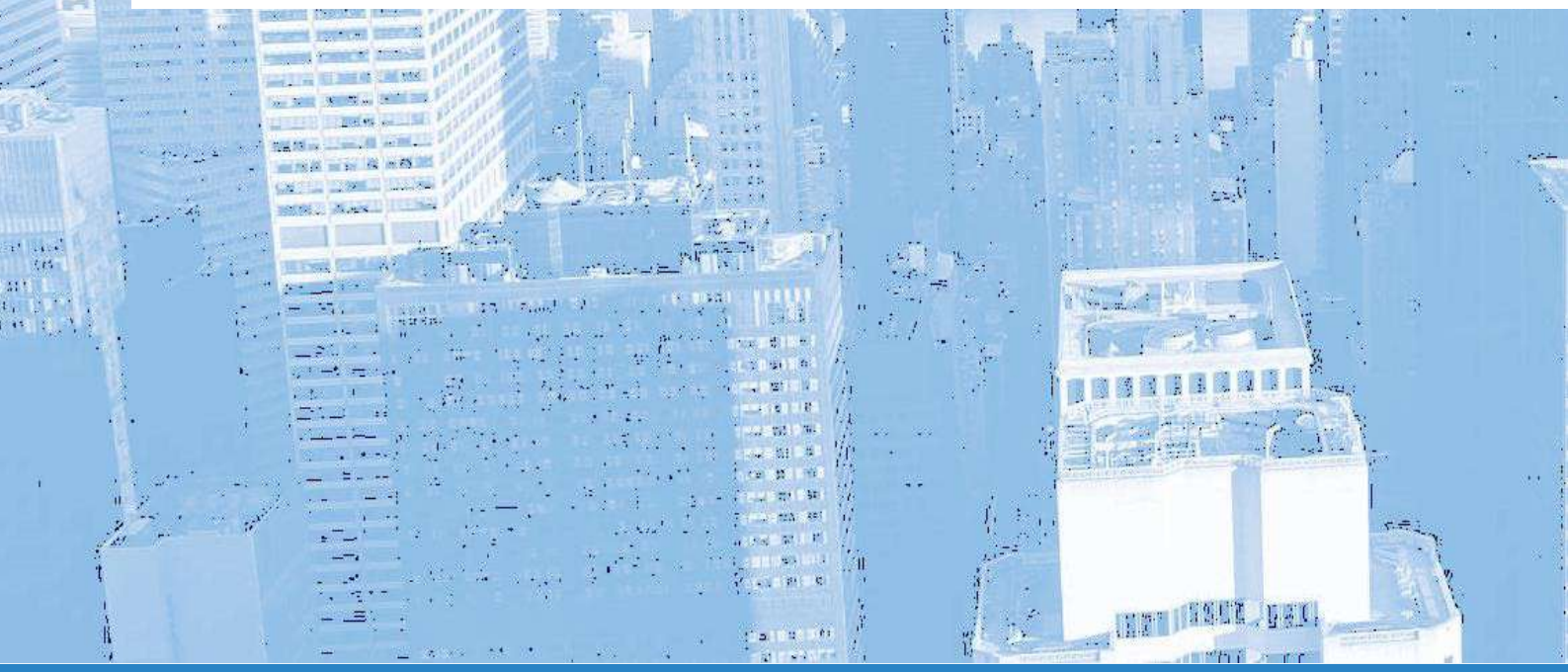
- The initial layer of polyurethane is sprayed to the desired thickness after making sure the slab is cleaned adequately.
- The polyurethane layer is sprayed with liquid acrylic waterproofing which serves as a waterproofing layer as well as solar UV protection for the polyurethane layer.
- A water test is then conducted once the acrylic liquid waterproofing layer is completely dry. The water test is done after blocking the rain water pipe at ground level.
- This will ensure the integrity of the drainage outlet and pipes right to the ground level.
- A geotextile separation layer is now laid over the surface to protect it while the screeding work proceeds.
- The slope lines are now laid with expansion joint filler board strips held in place with sand cement mortar. The strips are placed such that they form panels not larger than 4meters by 4meters.
- Custom screed is now poured on the bays to the prescribed levels and the surface finished smoothed with power float machines. Triangular fillets are provided at all up stands.
- The joints formed by the expansion joint filler strips are now opened by power grinders and resealed using polysulphide sealants.
- All foundations and platforms are now made by the main contractor.
- The final coat of acrylic cementations waterproofing is now spray applied over the entire surface. The site is ready for handing over after the curing period of 48 hours.

TECHNICAL DETAILS



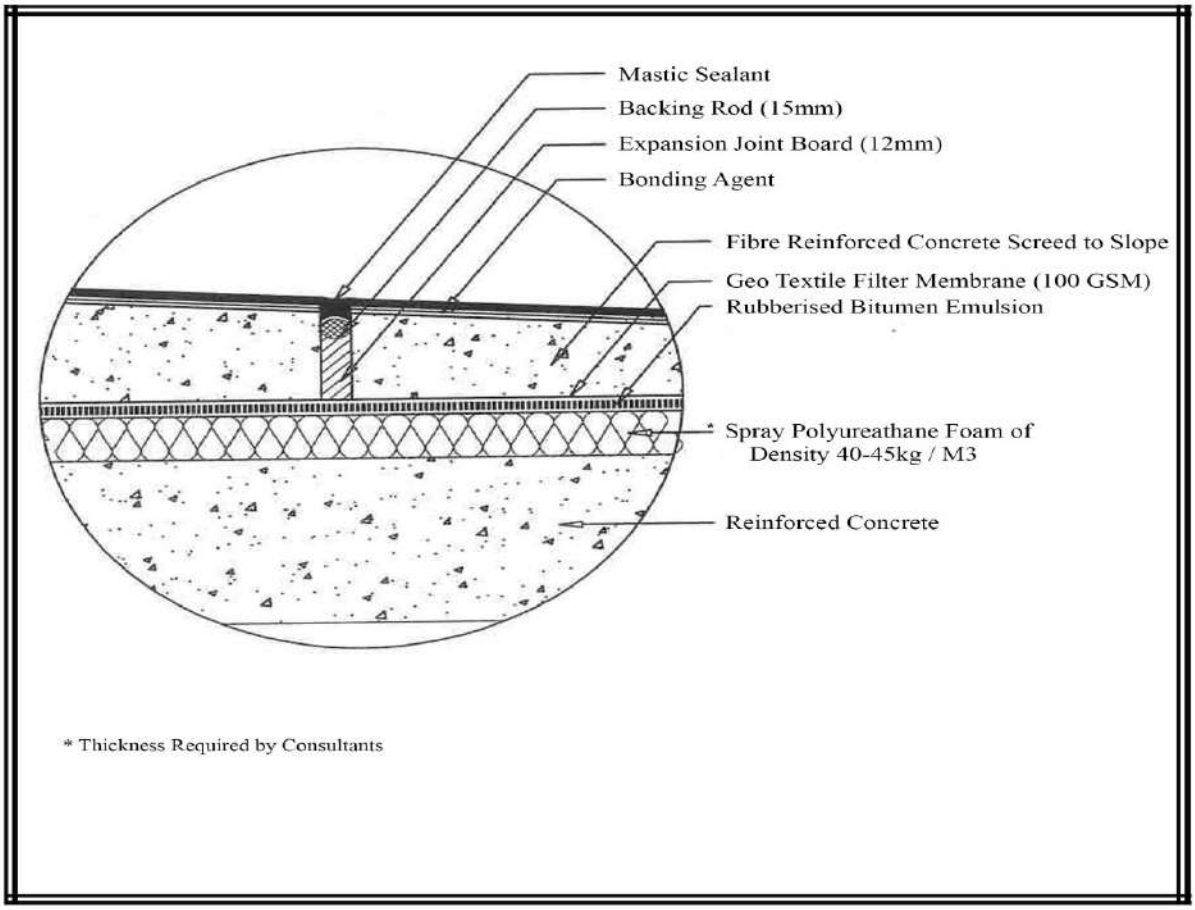
GREEN COMBO ROOF SYSTEM

* Thickness Required by Consultants

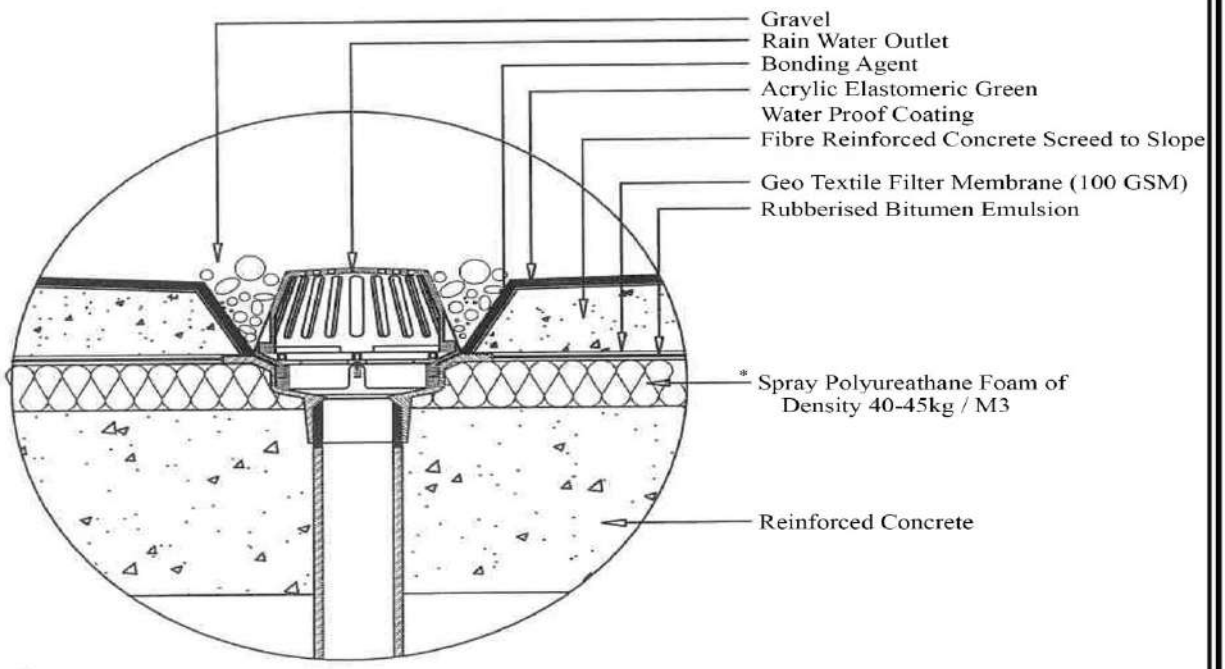


TECHNICAL DETAILS

Joint Treatment



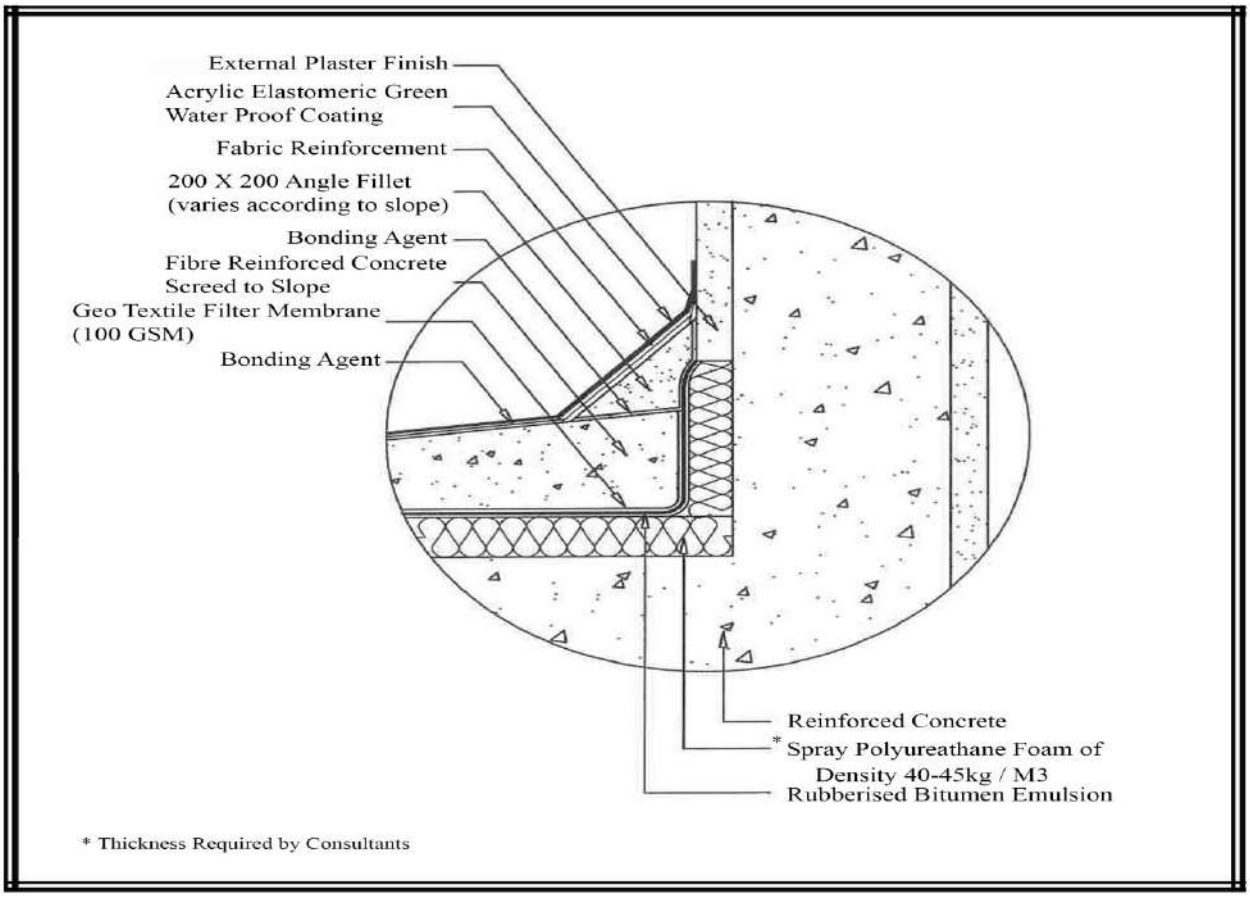
Rain Water Outlet Terminasion Detail



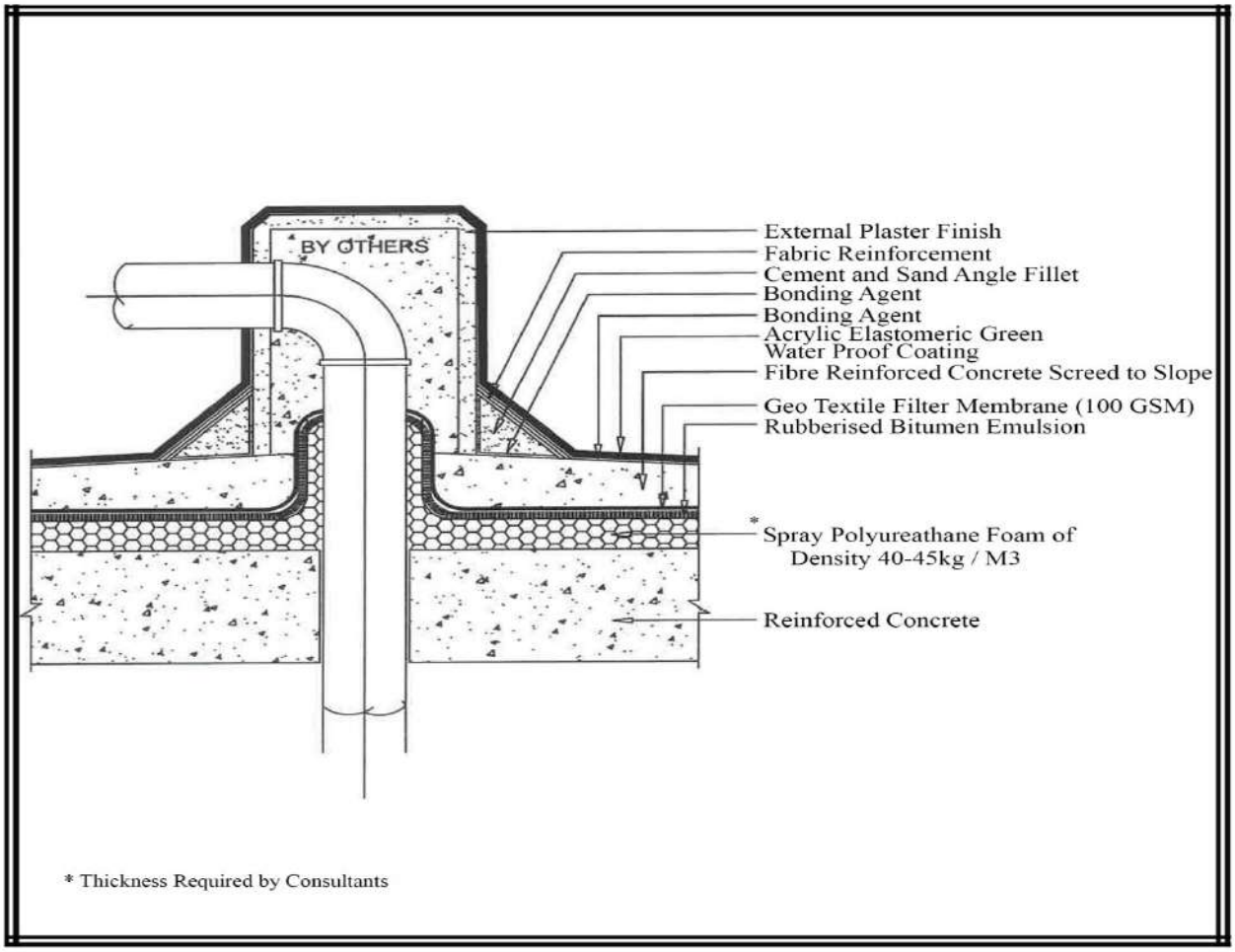
* Thickness Required by Consultants

TECHNICAL DETAILS

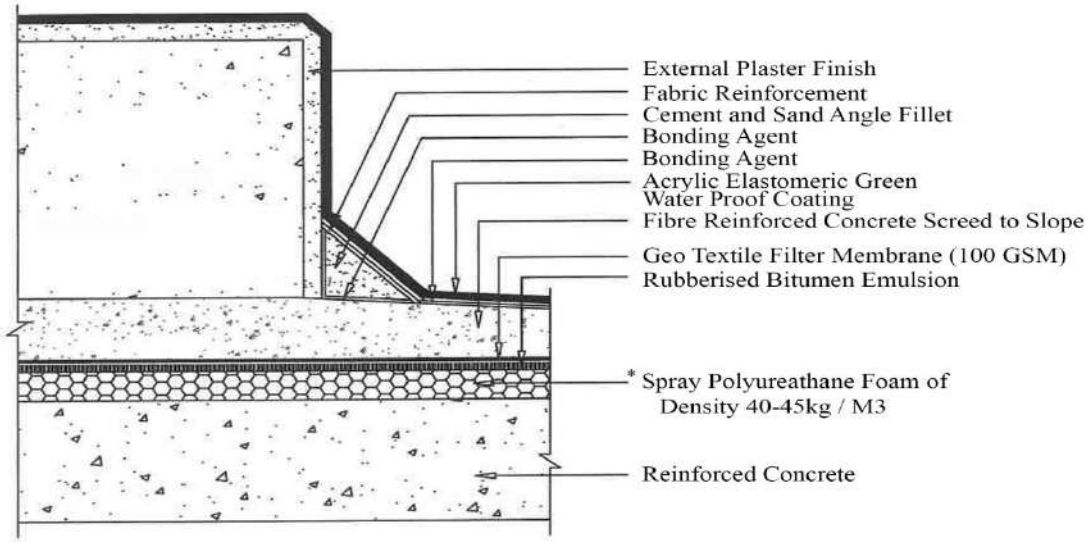
Skirting Details



Pipe Penetration Details



Water Tank Platform



* Thickness Required by Consultants

MEMBRANE INSULATION SYSTEM

Bituminous products are perfect for the waterproofing of roofs on buildings as they move with the structure as they are not too rigid and do not absorb water. Waterproofing membranes systems are designed to protect both residential and commercial buildings through a mixed substance made up of organic liquids that are highly sticky and viscous. Also can be used as a continuous waterproofing membrane for foundations, basements, tunnels, concrete etc. and it is applied by flame bonding.

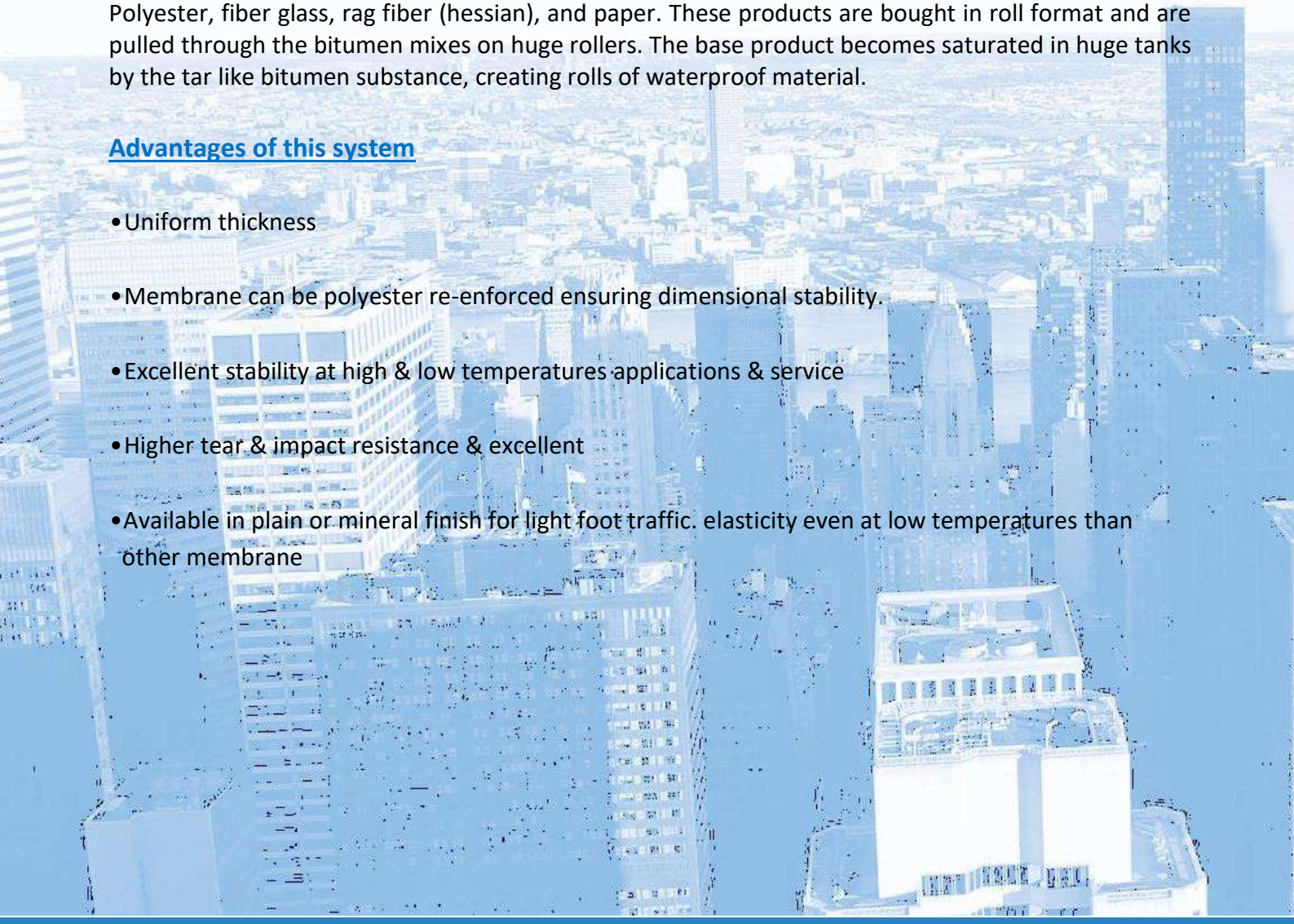
Bituminous membranes are made up of more than one product. Bitumen -mixed with a filler (limestone or sand) component such as sand. Polymers are added to the bitumen such as APP (atactic polypropylene) a plastic additive that gives rigidity and tear resistance, or SBS (styrene butadiene styrene a rubber additive that gives more elastic benefits.

Base Products

Polyester, fiber glass, rag fiber (hessian), and paper. These products are bought in roll format and are pulled through the bitumen mixes on huge rollers. The base product becomes saturated in huge tanks by the tar like bitumen substance, creating rolls of waterproof material.

Advantages of this system

- Uniform thickness
- Membrane can be polyester re-enforced ensuring dimensional stability.
- Excellent stability at high & low temperatures applications & service
- Higher tear & impact resistance & excellent
- Available in plain or mineral finish for light foot traffic. elasticity even at low temperatures than other membrane



MEMBRANE INSULATION SYSTEM

The Process Description

1. Surface Preparation:-

Surface on which the membrane is to be applied must be sound, clean and dry.

Dust loose materials, protrusion must be removed cracks, holes etc…. must be covered.

2. Priming:-

Apply Polycot primer at a coverage rate of 1-4 m2 / lt. /coat through the help of

Brush / Roller

3. Alignment

Unroll and align membrane rolls and re-rolling correctly keeping an overlap as

100 mm side laps

4. Membrane Application:-

4.1 Torching- Position the rolls with the correct orientation, heat the lower surface of the rolls with a propane gas torch and unroll as the bitumen begins to melt, Roll forward and press firmly with a roller against the substrate to bond

4.2 Sealing- The membrane is need to seal properly; heat both the overlaps and use round tipped trowel to seal the overlap.

4.3 Up stands– All angles and abutments should sealed with extra care to ensure full bonding, sealing the edges well into the grooves or protective auxiliary materials.

MEMBRANE INSULATION SYSTEM

GRP LINING SYSTEM

GRP lining is a hose relining method in which the inline used is a seamless glass fiber fabric hose. GRP lining can be used to rehabilitate sewers with damage such as root penetration, deposits, socket offset, cracks and pipe fractures.

Once the existing pipe has been cleaned and inspected by a camera, it is prepared for rehabilitation with milling and smoothing robots, which pulls the folded inline hose into the existing pipe through a shaft. When subjected to compressed air the inline unfolds and applies itself to the inside wall of the existing pipe. The curing method is selected according to site conditions - using either ultraviolet light or a mixture of air and steam. Unsaturated polyester resins or vinyl ester resins are used, depending on the level of exposure to chemicals. The curing process is continuously monitored and recorded with the help of automated devices.

GRP LINING SYSTEM

Method of statement GRP Lining

1. Grinding

After concreting many irregularities on the surface remain and if lamination is carried out on such surface finishing on the outer surface will be inferior. Hence, surface grinding of concrete has to be done, if necessary. This removes all irregularities and the surface becomes clean. Moreover, the grinded surface has more porosity which will ensure a stronger bonding with resin.

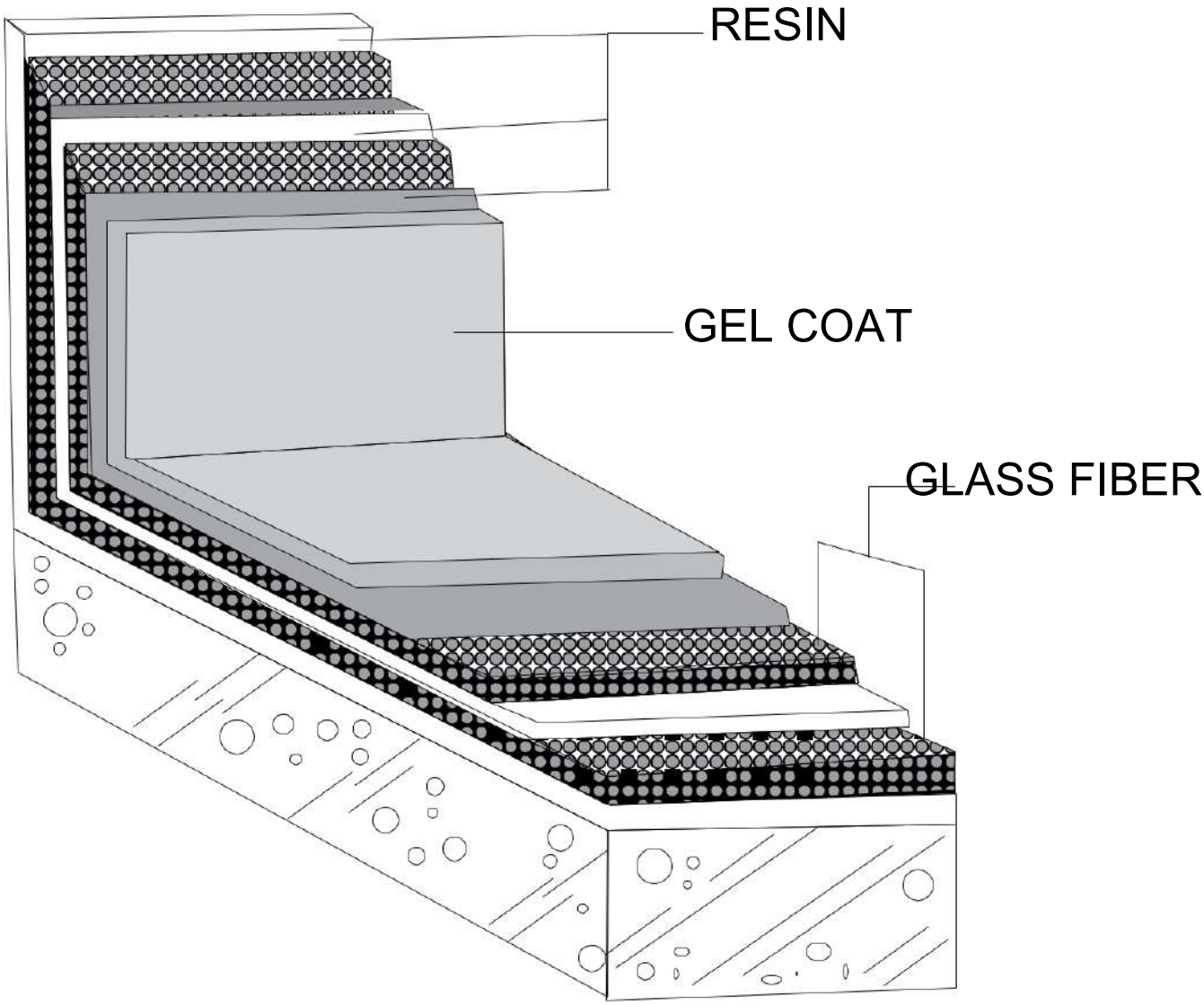
2. Dust Removal

After grinding, concrete powder and debris accumulate and this has to be removed as it gets entrapped between the lining and the surface. Hence, the concrete surface is to be cleaned properly with acetone and it is ensured that no impurities are entrapped.

3. Lamination

Process of lamination for open areas of benching:

- After the surface preparation and removal of dust, first coat of resin is applied on the concrete surface. Care is taken to see that the resin fills all voids in the concrete surface so as to avoid the formation of air bubbles.
- One coat resin is applied on concrete surface. Then first pre-trailed layer of glass fiber (CSM) is placed on the resin applied surface.
- A woolen roller is used for applying the resin on the mat.
- Second layer of glass fiber (CSM) is placed over the first layer with resin applied over it.
- Metallic roller is used to impregnate the lamination and to remove any air entrapment.
- Sufficient time is allowed for successive glass fiber impregnation to avoid peak exothermic heat.
- Successive layer is applied on the already impregnated lamination with thickness condition for better bonding between the layers. The procedure is repeated until required thickness is achieved.
- Finally top coat will be applied on the cured lamination.


RESIN
GEL COAT
GLASS FIBER

PILE HEAD TREATMENT SYSTEM

A pile cap is a thick concrete mat that rests on concrete or timber piles that have been driven into soft or unstable ground to provide a suitable stable foundation. It usually forms part of the foundation of a building, typically a multi-Storey building, structure or support base for heavy equipment. The cast concrete pile cap distributes the load of the building into the piles. A similar structure to a pile cap is a “raft”, which is a concrete foundation floor resting directly onto soft soil which may be liable to subsidence.

The Advantage of Pile Head/Cap Treatment:

The Pile Head Treatment is the final working step of a successful piling and foundation system. Every pile has to be protected against chloride and sulphate attacks on the reinforcement caused by the soil and groundwater. It also has to assure that there will be no passage of water from the ground to the substructure. A proper designed system shall include:

Re-profiling, waterproofing and full encapsulation of the entire pile head to assure that each and every structure is based on a long lasting and safely built foundation.

FOAM CONCRETE (LIGHT WEIGHT)

Foam concrete is a type of porous concrete.

According to its features and uses it is similar to aerated concrete.

The synonyms are:

- aerated concrete
- light weight foam concrete
- porous concrete

Foam concrete is created by uniform distribution of air bubbles throughout the mass of concrete. Foam concrete is produced by mechanical mixing of foam prepared in advance with concrete mixture, and not with the help of chemical reactions. Foam is prepared in special device - foam generator and after that mixing in special mixer.

Foam Concrete is normal concrete with bubbles of air inside. Therefore it has the same characteristics with many additional advantages. Also CLC can be produced and poured for floors and roofs on-site. In roofs it can be used because of very good insulating and lightweight. For floors CLC offers faster installation and a less expensive option because of the flowing and self-leveling properties.

FOAM CONCRETE (LIGHT WEIGHT)

FOAM TABLE

Dry Denicity Kg/cqm	Sand/ Cement Kg	Kg (ratio)	Edomda Foam Liquid F/A	Water Litre	Foam Litre	Thermal Condutivity Kcal/sq.mhc	Compressive Strength (28 days) Kg/Sq/cm	Principal Applicatioon
350	-	300(-)	1.15	130	840	0.070	10.8	8 General Thermal and Dcoustic insulation. Termal insulation for flat rooting with required gradient
400	-	340(-)	1.12	145	830	0.084	16.7	
450	-	375(-)	1.09	175	780	0.90	17.6	
500	-	425(-)	1.06	200	775	0.095	19.6	Light weight curtain wall blocks for instruction
550	-	455(-)	1.04	205	770	0.100	24.5	
600	-	510(-)	1.00	220	760	0.115	29.4	
700	320	320(1/1)	1.20	150	770	0.130	20.6	Interal partition wall blocks and Panels
800	365	365(1/1)	1.12	160	765	0.150	33.3	
900	410	410(1/1)	1.03	190	700	0.175	35.3	

Foam Concrete Machin

WET AREA WATERPROOFING

An area within a building supplied with a floor waste, and the advantage of the waterproofing systems are to prevent moisture entering the substrate or adjacent areas and graded to floor wastes to dispose of water without ponding.

A lack of waterproofing maintenance leads to:

1. The costly replacement of waterproofing
2. The deterioration of properties
3. Possible structural damage
4. The frustration the “nuisance” value
5. Damage to internal property (valued paintings, carpets, wooden flooring etc.)
6. Insurance companies unwilling to cover claims (as said to be preventative maintenance)

Recommended used materials:

- Cementatious Coating
- Acrylic Coating
- Polyurethane Liquid Coating
- Liquid Membrane Coating

CEMENTATIOUS WATERPROOFING

Cementations systems generally are available as ready to apply. The two components systems consist of a resin base which is normally an acrylic co-polymer with water proofing properties and a cementations powered roller or by spray. A fabric scrim we suggested over expansion joints to protect the layer from tensile thermal expansion on the roof. Cementations systems are also applied over spray applied polyurethane thermal insulation as a protective layer, as these systems possess high resistance to UV rays. Since application skills require are minimum, they highly popular among maintenance contractors. However, it should be noted that the waterproofing and durability membrane and care should be exercised in choosing one with adequate co-polymer content.

FLOOR EPOXY COATINGS

Epoxies are polymer materials that begin life as liquids and are converted to the solid polymers by a chemical reaction. An epoxy based polymer is mechanically strong, chemically resistant to degradation of the chemical elements in the solid form and highly adhesive during conversion from liquid to solid. There are a wide range of basic epoxy chemicals from which an epoxy system can be formulated.

Epoxy coating is used indoors where a hard, very durable paint surface is needed. It's commonly used, therefore, for flooring (and/or walls) in garages (both commercial and residential), factories, shops and other high-traffic areas.

There are, however, several different types of epoxy/ Polyurethane floor coating to choose from:

- Epoxy Solvent Free coating
- Epoxy Solvent base coating
- Polyurethane UV Resistant Heavy Duty Coating

THERMAL INSULATION SYSTEM

The accelerated constructional activities coupled with the ever increasing demand for economical and comfortable living encourages us to adopt the latest scientific and technology advancements. Hence we have chosen the concept of the Thermal Insulation System, which plays a vital role in improving the cooling conditions inside buildings. This definitely reflects on power consumption and money involved for all parties concerned in the construction process.

Thermal Insulation System has been introduced to reduce your electric consumption costs up to 40%, thus saving money and the country's energy resources. It also indeed creates a more comfortable living and working atmosphere.

PAINTING SERVICE

Interior ceiling and wall painting is a project that's best divided into two: cutting in and rolling.(Having two people do the work is nice — especially if you're not one of them) one person uses a brush to cut in, or outline, all the areas that a paint roller can't cover without getting paint on an adjacent surface. The other member of the team spreads paint on the ceiling and walls with a roller. If the ceiling and walls are the same color, you can cut in both at the same time. Otherwise, work on the ceiling first.

If you're painting with a partner, have the person with the brush start by spreading a 2-inch band of paint on the ceiling, all around its perimeter. Lap marks result if the cut-in paint dries before you blend in the rolled area with the cut-in area, so don't let the outliner get too far ahead of the roller. You also want the roller to roll over as much of the cut-in band of paint as possible. The textures that a brush and a roller leave are quite different.

APPROVALS

Scan this QR Code with smartphone to verify the certificate

CERTIFICATE OF REGISTRATION

This is to certify that:

HIGH TOWER BUILDING CONTG. LLC.

11032 - AL NAKHEEL, RAK, UAE

Has been assessed by SAGACI and found to comply with the requirements of

ISO 9001:2015

Quality Management System

Certification Scope

Damp Proofing and Water Proofing Work (Insulation Contracting), Building Construction

Certification Calendar

Certificate Number
IAS0912Q1549

Client ID
HI488

Issue
01

Date of Registration
09-Dec-2020

Date of Issue
09-Dec-2020

Date of Expiry
08-Dec-2023

*The full duration validity of this certificate is subject to successful & timely completion of the surveillance audits.
*This certificate remains the property of SAGACI and shall have to be returned back when it has ceased to be valid, for whatsoever reason.
*Information about this certificate can be inquired at the official website of certification (www.sagacicert.com)

Authorised Signatory

SAGACI Entrusted Recognition

MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT IAF

IAS ACCREDITED Management Systems Certification Body

SAGACI CERTIFICATIONS PRIVATE LIMITED

www.sagacicert.com

This certificate has been issued by Sagaci Certifications Pvt. Ltd., 20, A-2, Shiva Arcade, Acharya Niketan, Mayur Vihar Phase - 1, Delhi - 110091, and will remains valid subject to maintaining its system to the required standard(s). This will be monitored regularly by SAGACI. The use of IAS accreditation mark indicates accreditation in respect of those activities covered by the accreditation certificate. Futher clarification regarding the scope of this certificate and verification of the certificate is available through SAGACI or www.sagacicert.com.
Phone: 011-43601911, Email: info@sagacicert.com, Web: www.sagacicert.com

Ver. 2.5

Ref. No.: HPIL/2020262
02/08/2021

APPLICATOR CERTIFICATE

We Acknowledge ***M/s. High Tower LLC. P.O Box 1103, Ras AL Khaimah, United Arab Emirates***, as a proficient company specialized in executing Waterproofing jobs using our products (Bituboard, Bituplus & Bitustick Range of Membranes)

Henkel Polybit Industries Ltd. Recommends. ***M/s. High Tower LLC.*** *as* an approved applicator for executing quality waterproofing jobs using our products (Bituboard, Bituplus & Bitustick Range of Membranes).

This certificate is valid for one year from the date of issue.

For **Henkel Polybit Industries Ltd.**,

Emmanuel Leo
Senior Manager – Technical Customer Services

Elizabeth Abey
Sales Manager Retail – UAE

Henkel Polybit Industries Ltd.
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Phone: +971 (6) 76 70 777, Fax: +971 (6) 76 70 197
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هنكل بولي بت للصناعات المحدودة
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شركة صناعات المواد العازلة للماء ديرمابيت المحدودة
DWI, DERMABIT Waterproofing Industries Co. Ltd.

Fully Paid-up Capital SR 11.5 Million
C. R. No. 2055001024
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رأس المال المدفوع بالكامل ١١,٥ مليون ريال سعودي
رقم السجل التجاري: ٢٠٥٥٠٠١٠٢٤
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تلفون: ٠٤٦٤١٠ ١٣ ٣٤١ (٠٠٩٦٦) فاكس: ٠٤٨١ ١٣ ٣٤١ (٠٠٩٦٦)

www.dermabit.net

December 15, 2018

CERTIFICATE

We hereby certify that M/s. Hightower Insulation System, Post Box 11032 Ras Al Khaimah UAE, are an approved and experienced applicator of waterproofing membranes and boards as manufactured by DWI, Dermabit Waterproofing Industries Company Limited, Jubail, Saudi Arabia.

For DWI, DERMABIT WATERPROOFING
INDUSTRIES COMPANY LIMITED

Gaby G. Gedeon
General Manager

شركة صناعات المواد العازلة للماء
ديرمابيت المحدودة - الجبيل
شركة ذات مسئولية محدودة - س.ت ٢٠٥٥٠٠١٠٢٤
DWI, DERMABIT WATERPROOFING
INDUSTRIES CO. LTD.
C.R. 1024, JUBAIL - K.S.A.

SUPPLIER'S DATA SHEET (TDS)

BASF

The Chemical Company

Technical Data Sheet

Elastospray H 1611/16

Application

PU spray foam system for the production of spray foam for insulation as well as water proof application. The system can be applied on substrate like metal, plywood and concrete. Suitability must be examined by the user prior to commercial use.

Chemical Characteristics

Polyol-Component: mixture of polyols, fire retardants, stabilizer, catalyst, blowing agent HCFC141 b
Iso-Component: polymeric diphenylmethane diisocyanate (IsoPMDI 92140)

Supply

The type of supply for the components will be decided after consultation with our Sales Office.

Storage, Preparation

Polyurethane components are moisture sensitive. Therefore they must be stored at all times in sealed, closed containers. More detailed information should be obtained from the separate data sheet entitled "Information for in-coming material control, storage, material preparation and waste disposal" and from the component data.

Processing

For the processing follow the information provided by our technical adviser.

Possible Hazards

The B-component (Isocyanate) irritates the eyes, respiratory organs and the skin. Sensitisation is possible Through inhalation and skin contact. PMDI is harmful by inhalation. On processing these, take note of the Necessary precautionary measures described in the Material Safety Data Sheets (MSDSs). This applies also for The possible dangers in using the A-component (Polyol) as well as any other components. See also our separate Information sheet "Safety- and Precautionary Measures for the Processing of Polyurethane Systems." Use our Training Programme "Safe Handling of Isocyanate."

Waste Disposal

More detailed information is provided in our country –specific pamphlet.

Consumer articles, medical products

There are national and international laws and regulations to consider if it is intended to produce consumer articles (eg articles that necessitate food or skin contact, toys etc.) or medical objects out of Elastogran's products. Where these do not exist, the current legal requirements of the European Union for consumer articles as well as medical products should be sufficient. Consultation with the Elastogran Sales Office and our Ecology and Product Safety Department is strongly recommended.

Elastospray H 1611/16

Component Data

Characteristics	Unit	Component A Elastospray H 1611/16	Component B Iso PMDI 92140	Method
Specific Gravity (25℃)	—	1.14 ± 0.02	1.24 ± 0.02	EKPS-01-01
Viscosity (25℃)	Cps	450 ± 100	170 - 250	EKPS-02-01
Storage stability	Days	180	180	

*find below basic mix ratio

Processing Data

Cup test by Bench mixer at 3000 rpm

	Unit	specification	Method
Guide formulation	Component A	Elastospray H 1611/16 (pbw) = 100	
	Component B	Iso PMDI 92140 (pbw) = 100	
Component temperature	℃	20	
Quantity	g	A = 75 B = 75	
Mixing ratio		A : B = 100 : 100	
Stirring time	s	4	
Cream time	s	4 ± 2	EKPS-04-01
Gel time	s	8 ± 2	EKPS-04-01
Tack Free time	s	10 ± 2	EKPS-04-01
Density, free rise	kg/m³	27.5 ± 0.5	EKPS-04-01

General Advice

It is not known whether this system is equally suitable for all types of sheet metal and primer offered on the market. Therefore, suitability must be examined by the user in each individual case.

Elastospray H 1611/16

Characteristics	Unit	Measured value	Test Method
Measured values were determined on specimens during the product approval/Approved product. Verification of these properties on production plants at user's site under prevailing production conditions is required.			
Density / overall	kg/m³	40	ASTM D 1622
Closed cell content	%	90	ASTM D 6226
Thermal Conductivity	w/m°K	0.0210	ASTM C 518
Compressive stress at 10% deformation	kPa	150	ASTM D 1621
Dimensional Stability -20°C for 48 hrs +70°C for 48 hrs	% change in volume	 0.48 0.66	ASTM D 2126
Flammability	-	B3	DIN 4102

Technical Data Sheet

IsoPMDI 92140

Version 02/bl
Date of issue: 24.02.2005

Elastogran
BASF Group

Application

IsoPMDI 92140 is principally used for the manufacture of insulating foams and higher density rigid foams. It is also used for the production of semi-rigid foams in the automative industry and sound insulation as well as for packaging foams, casting materials, binders and adhesives.

Chemical Characteristics

IsoPMDI 92140 is a solvent-free product based on 4,4'-diphenylmethane diisocyanate (MDI) and contains oligomers of high functionality and isomers. The average functionality is approx. 2.7.

Supply

The type of supply for the components will be decided after consultation with our Sales Office.

Storage, Preparation

Polyurethane components are moisture sensitive. Therefore they must be stored at all times in sealed , closed containers. More detailed information should be obtained from the separate data sheet entitled "Information for in-coming material control, storage, material preparation and waste disposal" and from the component data.

Processing

For processing follow the information provided by our technical adviser.

Possible Hazards

Isocyanate irritates the eyes, respiratory organs and the skin. Sensitisation is possible through inhalation and skin contact. MDI is harmful by inhalation. On processing these, take note of the necessary precautionary measures described in the Material Safety Data Sheets (MSDSs). See also our separate information sheet " Safety- and Precautionary Measures for the Processing of Polyurethane Systems." Use our Training Programme " Safe Handling of Isocyanate."

Waste Disposal

More detailed information is provided in our country -specific pamphlet.

Consumer articles, medical products

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IsoPMDI 92140

Elastogran
BASF Group

Component Data

	Unit	Value	Method
NCO-content	%	31.8	ASTM D 5155-96 A
Acidity as HCl	mg/kg	150	ASTM D 1638-74
Viscosity (25 °C)	mPa·s	210	DIN 53 018
Density (25 °C)	g/cm³	1.23	DIN 51 757
Specific heat (20 °C)	kJ/kg·K	1.4	-
Specific heat (80 °C)	kJ/kg·K	1.6	-
Storage Stability	month	6	-
Appearance	-	brown liquid	-

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PU FOAM SS-45A

Two-component, spray-applied polyurethane foam system

PUFOAM SS-45 A is an HCFCblown & CFC free, polymeric M.D.I based system to produce rigid polyurethane foam.

CHARACTERISTICS

- Spray applied
- CFC free & HCFC blown
- 45kg density

DESCRIPTION

PUFOAM SS-45A is a two-component, spray-applied polyurethane foam that creates a seamless, monolithic barrier against water vapor and air. PUFOAM SS-45A is an HCFCblown & CFC free, polymeric M.D.I based system for producing rigid urethane foam witha nominal core density of 45 kg/m³ by spray process. The system may be applied to substrates where the surface temperature is of the order of 25 - 30°C. Grades, adjusted in reactivity, are available for both cold and hot condition.

FIELDS OF APPLICATION

- roof spraying applications.
- flooring and wall insulation.
- storage tank insulation

COMPONENT PROPERTIES

MDI component is a dark brown colored, undistilled grade of polymeric diphenyl methane di-isocyanate (crude M.D.I).

- viscosity @ 20°C. : 150 - 200 cps
- specific gravity @ 20°C 1.24
- NCO content, % wt. 30-31

Polyol Component is a low viscosity blend of polyols, hydro fluorocarbon blowing agent, catalysts and surfactant

- viscosity @ 20°C approx.450 cps.
- specific gravity @ 20°C : 1.16

STORAGE AND HANDLING

Store at room temperature in sealed drums. Moisture will react with this component to produce a surface skin of polymerized material. Protect from moisture and moisture vapour. Close all drums after use. Maximum permissible storage time is 6 months. The ideal storage temperature is between +20°C and +25°C. MDI may undergo partial crystallization at temperature below 0°C. The product can, however, be brought back into the liquid state by placing the container in a heating cabinet and carefully warming the entire contents for a short time to a maximum of 70°C. Safety goggles, impermeable protective gloves and coveralls should always be worn when handling this product. Contaminated clothing should be removed immediately to prevent further skin contact. Store at room temperature (below 25°C.) in sealed drums. Close all drums after use to prevent loss of blowing agent and absorption of moisture.

TDS_PU Foam SS45A_GCC_0118

1

MIX RATIO

1:1 by volume.

Typical reaction rate and density (laboratory, cup mix) (both components at 20°C)

- cream time: 6 - 8 sec.
- tack free time: 15 - 25 sec.
- free rise density : 32 - 36kg/m³

Reactivity and density may vary depend on ambient temperature and grade.

SUPPLY

PU Foam SS45A

Part A	220kg drum
Part B (MDI)	250kg drum

COVERAGE

Average consumption of 1.7kg/m² with 3cm thickness

Quality for Professionals

TECHNICAL SPECIFICATION

PROPERTIES	VALUES	STANDARDS
Mix ratio, [volume:volume]	1:1	-
Final density, [kg/m]	43 to 48	ASTM D 1622
Application thickness, [cm]		
Min	3	
Max	10	
Compressive strength, [kpa]		
With rise	220 to 320	ASTM D 1621
Against rise	172 to 207	
Thermal conductivity @ 25°C, W/(mk)		
Initial value	0.023	ASTM C 518/19
Aged value	0.026	
Closed cell content, apparent vol, %	92 to 93	ASTM D 2856
Water vapor transmission, perm-inch		
All cut surfaces	2	ASTM C 518/91
With skin retained	1	
Water absorption, per cm^2 (gm/cc)		
Without protective coating	0.0087	ASTM C 272
With protective coating	0.0019	
Dimensional stability, % linear change		
7 days @ - 15°C	<1.0	ASTM D 2126
7 days @ 100°C	2	
7 days @ 70°C [100% RH]	2.5	
Fire resistance	Class B3	DIN 4102

All values given are subject to 5-10% tolerance

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Quality for Professionals

Polyfoam - MDI

Diphenylmethane Diisocyanate

CHARACTERISTICS

- Diphenylmethane – 4,4'- diisocyanate

DESCRIPTION

Polyfoam - MDI is a liquid, dark brown mixture of diphenylmethane – 4,4'- diisocyanate with isomers and homologues of higher functionality. It is used in conjunction with polyol to produce rigid polyurethane foams.

FIELDS OF APPLICATION

– it is used in conjunction with polyol to produce rigid polyurethane foams.

STORAGE & HANDLING

Recommended storage temperature: + 10 to + 30°C. Storage stability (ex works): 6 months if stored in moisture – tight drums.

APPLICATION INSTRUCTIONS

MDI may undergo partial crystallization at temperatures below 0°C. The product can, however, be brought back into the liquid state by heating the entire contents of the drum for a short time to a maximum of 70°C, although this may lead to an increase in the solids content. Drums – including empty ones – should always be kept tightly sealed. The product should never be allowed to come into contact with water, which reacts with MDI to form polyureas and carbon dioxide. Contact with water in any form (damp drums, solvents containing water, moist air) must be prevented not only during storage, but also when removing material from drums and during processing. Failure to do so may lead to a dangerous build – up of pressure in tanks and drums due to the generation of carbon dioxide. In addition, polyureas forming in MDI can cause solids to separate out, leading to blockages in the filters, pumps and pipelines of the processing equipment and resulting in production problems. MDI is a mixture of diphenylmethane-4,4'-diisocyanate isomers with a specific content of homologues of higher functionality. At 20°C MDI has a vapour pressure of less than 10^{-5} mbar. Due to the production method used, isocyanates based on MDI always contain phenyl isocyanate (max. 50 ppm), but this has practically no effect on the toxicological properties of MDI.

MDI is classified as a dangerous substance and requires a hazard-warning label. It must be handled with care. An occupational exposure limit has been set which defines the maximum permissible workplace concentration, in the form of gas, vapour or airborne particulate, of a specific chemical or chemicals contained in MDI. Details of the current occupational exposure limit, which is subject to constant review, are given in the Safety Data Sheet accompanying the product.

The degree of risk depends mainly on the quantities of isocyanate vapours and aerosols released when MDI is processed. No problems arise when MDI is poured at 20 to 25°C, provided this is done in a well-ventilated area. It is however essential to provide adequate exhaust ventilation at each workplace, with the air being drawn away from the personnel handling the product. Exhaust equipment should be periodically checked.

Ventilation is particularly important if MDI or reaction mixtures containing MDI are sprayed, heated or processed at temperatures above 25°C, since there is then a risk that the occupational exposure limit may be exceeded.

Quality for Professionals

Vapours and aerosols of MDI (the latter being formed during spray application or when cleaning mixing heads with an air blast) cause irritation to the eyes and the mucous membranes of the nose, throat and lungs, and may lead to hypersensitivity reactions. Inhalation should therefore be avoided.

Safely goggles, impermeable protective gloves and overalls fastened at neck and wrist should always be worn when handling MDI. Splashes of MDI in the eyes should be removed immediately by careful flushing with copious amounts of water. Medical attention should then be obtained. Splashes on the skin should be wiped off immediately, after which the contaminated areas should be thoroughly washed with soap and water. A barrier cream should than be applied. Contaminated clothing should be removed immediately to prevent further skin contact. MDI should be kept away from food, drink and tobacco.

TECHNICAL SPECIFICATION

PROPERTIES	VALUES
Appearance	Dark brown liquid
Specific gravity at 25[°C]	1.22-1.25
Viscosity at 25[°C]	150-250 mPa.S
NCO% Wt	30.2-32.0
Acid content(HCL)	≤0.05%
Hydrolysable chlorine	≤0.2%

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Bayer Pearl

SYSTEM ISO 44V20L

General Properties and Applications	SYSTEM ISO 44V20L is a liquid, dark brown mixture of diphenylmethane-4,4'-diisocyanate (MDI) with isomers and homologues of higher functionality. It is used in conjunction with polyols to produce molded parts of rigid integral skin foams.
Sampling	Exposure to moisture must be prevented when taking product samples

Specification

Property	Value	Unit of measurement	Method
NCO content	30.5 - 32.5	% by wt.	2011-0248603-94
Viscosity 25 °C*)	160 - 240	mPa·s	2011-0313703-95
Acidity	max. 200	ppm HCl	2011-0461102-96

*) Lengthy storage can lead to an increase in the viscosity of SYSTEM ISO 44V20L , although in our experience this has no adverse effect on the processing properties of the product.

Other Data*

Property	Value	Unit of measurement	Method
Density 20 °C	approx. 1.23	g/cm³	DIN 51757
Phenylisocyanate content	max. 50	ppm	2011-0489801-95
Coefficient of thermal expansion	6.59 . 10-4	K-1	
Specific heat (cp)	approx. 1.51	kJ/kgK	

* These values provide general information and are not part of the product specification

Packaging	Drums, IBCs, tank containers and tank wagons
Storage	Recommended storage temperature: + 10 to + 30 °C (in exceptional cases up to 50°C) Storage stability (ex works): 6 months if stored in moisture-tight drums
Labeling and REACH applications	This product data sheet is only valid in conjunction with the latest edition of the corresponding Safety Data Sheet. Any updating of safety-relevant information – in accordance with statutory requirements – will only be reflected in the Safety Data Sheet, copies of which will be revised and distributed. Information relating to the current classification and labeling, applications and processing methods and further data relevant to safety can be found in the currently valid Safety Data Sheet.

SYSTEM ISO 44V20L

Directions for Processing

SYSTEM ISO 44V20L may undergo partial crystallization at temperatures below 0 °C. The product can, however, be brought back into the liquid state by heating the entire contents of the drum for a short time to a maximum of 70 °C, although this may lead to an increase in the solids content.

Drums including empty ones should always be kept tightly sealed. The product should never be allowed to come into contact with water, which reacts with SYSTEM ISO 44V20L to form polyureas and carbon dioxide. Contact with water in any form (damp drums, solvents containing water, moist air) must be prevented not only during storage, but also when removing material from drums and during processing. Failure to do so may lead to a dangerous build up of pressure in tanks and drums due to the generation of carbon dioxide. In addition, polyureas forming in SYSTEM ISO 44V20L can cause solids to separate out, leading to blockages in the filters, pumps and pipelines of the processing equipment and resulting in production problems.

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Baymer® SHPU-40-27A

General Properties and Applications	Baymer® SHPU-40-27A is a formulated polyol used to produce spray foam insulation in multi layers for roofing, wall and basements with a density of 40-48 kg/m³. It contains all the raw material and auxiliaries necessary for the production of rigid polyurethane foam including the blowing agent 141-B. Baymer® SHPU-40-27A along with SYSTEM ISO 44V20L can be used on roofs made of metal, concrete, wood etc.
Sampling	Moisture access should be prevented, formulation should be agitated before sampling.

Specification

Property	Value	Unit of measurement	Method
Hydroxyl number (theoretical)	350 ± 20	mg KOH/g	
Water content	1.2 ± 0.05	%	

Other Data*

Property	Value	Unit of measurement	Method
Density @ 25 °C	approx. 1.16 ± 0.01	g/ml	
Viscosity @ 25 °C	approx. 300 ± 20	m.Pas	

* These values provide general information and are not part of the product specification

Packaging	200 Liter steel drums
Storage	Shelf life from time of delivery: 6 months provided if it is stored in sealed tight containers were moisture cannot enter. Recommended storage temperature approx. between 20 - 25°C
Labeling and REACH applications	This product data sheet is only valid in conjunction with the latest edition of the corresponding Safety Data Sheet. Any updating of safety-relevant information – in accordance with statutory requirements – will only be reflected in the Safety Data Sheet, copies of which will be revised and distributed. Information relating to the current classification and labeling, applications and processing methods and further data relevant to safety can be found in the currently valid Safety Data Sheet.
Directions for Processing	Baymer® SHPU-40-27A Spray systems are designed for processing on high and low pressure machines that are able to work at mixing ratios of 1:1 by

volume, the machine parameters have to be selected in such way to ensure proper mixing.

Environmental Consideration and Substrate Temperatures:

Applicators must recognize and anticipate climatic conditions prior to application to ensure highest quality foam and to maximize yield. Ambient air and substrate temperatures, moisture and wind velocity are all critical determinants of foam quality. Extreme ambient air and substrate temperature will influence the chemical reaction of the two components, directly affecting the yield, adhesion and the resultant physical properties of the foam insulation.To obtain optimum results, Baymer Spray should be spray-applied to substrates when ambient air and surface temperatures are between 10°C and 50°C°. All substrates to be sprayed must be free of dirt, soil, grease, oil and moisture prior to the application of Baymer Spray. Moisture in any form: excessive humidity (>85%R.H.) rain, fog, or ice will react chemically will adversely affect system performance and corresponding physical properties. Application should not take place when the ambient temperature is within 3°C of the dew point. Wind velocities in excess of 20 km per hour may result in excessive loss of exotherm and interfere with the mixing efficiency of the spray gun affecting foam surface texture, cure, physical properties and will cause overspray. Precautions must be taken to prevent damage to adjacent areas from fugitive overspray.

Applicators should ensure the safety of the jobsite and construction personnel by posting appropriate signs warning that all "hot work" such as welding, soldering, and cutting with torches should take place no less than 35 feet from any exposed foam. If "hot work" must be performed all spray polyurethane foam should be covered with an appropriate fire or welder's blanket, and a fire watch should be provided.

Processing Equipment:

2:1 transfer pumps are recommended for material transfer from container to the proportioner. The plural component proportioner must be capable of supplying each component within ± 2% of the desired 1:1 mixing ratio by volume. Hose heaters should be set to deliver 50°C to 55°C materials to the spray gun. These settings will ensure thorough mixing in the spray gun mix chamber in typical applications. Optimum hose pressure and temperature will vary with equipment type and condition, ambient and substrate conditions, and the specific application. Some equipment may require you to heat drums to achieve optimum material temperature. It is the responsibility of the applicator to properly interpret equipment technical literature, particularly information that relates acceptable combinations of gun chamber size, proportioner output, and material pressures. The relationship between proper chamber size and

Baymer® SHPU-40-27A

the capacity of the proportioner 's pre-heater is critical. Contact your machine supplier representative for specific recommendations, pricing, and availability of spray and auxiliary equipment.

Per Pass Application:

Applicators should limit Bamer Spray thickness to 2,0 cm per pass for optimal processing and physical properties.

Handling and Safety:

Respiratory protection is MANDATORY! Contact BaySystems for a copy of the Model Respiratory Protection Program developed by API or visit their website at www.polyurethane.org. Avoid contact with skin, eyes, and clothing. Open containers carefully, allowing any pressure to be relieved slowly and safely. Wear chemical safety goggles and rubber gloves when handling or working with these materials. In case of eye contact, immediately flush with large amounts of water for at least fifteen minutes, consult a physician immediately. In case of skin contact, wash area with soap and water. Wash clothes before reuse.

Guide formulation	parts by weight	parts by volume
Baymer® SHPU-40-27A	100	100
SYSTEM ISO 44V20L	106	100

Foaming data by the hand mixing method at raw material temperature of 21°C

Cream time	4 ± 1	Seconds
Tack free time	10 ± 1	Seconds
Free Rise Density	25 ± 1	kg/m³
Applied density	approx. 40-48	kg/m³

Typical properties to be achieved under recommended application parameters:

Applied Density	approx. 40-48 kg/m³
Compressive strength	> 100 kPa
Fire rating (DIN4102-1)	B3
Initial thermal conductivity (ASTM C518)	≤ 0.022 W/Km

These values are given only as a guide and must be verified in each individual case on finished parts manufactured under the processor's production conditions.

BCI Baalbaki Chemical Industries

A partner for life.
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TECHNICAL DATA SHEET

POLYREX SP 30/4 B2

INTRODUCTION:

POLYREX SP 30/4 B2 is a formulated system for the production of R 141b blown rigid polyurethane foam.

POLYREX SP 30/4 B2 formulated PU system suitable for the insulation of roofs, sheds and bays through spraying technique. This system is classified B3 as per DIN 4102. R 141b blowing agent is already mixed with Polyol.

POLYREX SP 30/4 B2		
Viscosity	350 - 450 mPa.s	@20 °C Method BCI1301
Specific Gravity	1.17 - 1.19	@20 °C Method BCI1301

ISOREX R310/1		
Viscosity	150 - 300 mPa.s	@25 °C Method BCI1301
Specific Gravity	1.22 - 1.24	@25 °C Method BCI1301

TYPICAL REACTIVITY:

When components are mixed in 350 ml cup with mixer rotation 3000 rpm, mixer diameter 4cm for 7 seconds the reactivity profile and free rise density will be as listed in the table shown below.

Free rise density refers to cup test at an atmospheric pressure of 760mmHg, Free rise density will vary depending on atmospheric pressure. Values obtained on an industrial scale may differ substantially from those obtained in the laboratory.

Reactivity Profile		
POLYREX SP 30/4 B2	100 pbw	@20 °C
ISOREX R310/1	105 pbw	@20 °C
Cream Time	4 - 6	seconds
Gel Time	9 - 12	seconds
Free Rise Density	27 - 28	kg/m^3

PROCESSING RECOMMENDATIONS:

Components should be adjusted to the correct temperature before use to ensure reactivity and viscosity are suitable for processing.

Processing Recommendations		
Operating Temperature	50 - 60	°C
Mixing Ratio SP 30/4 B2: R310/1	100 : 105	pbw

STORAGE RECOMMENDATIONS:

If stored at temperature between 10-25 °C and protected against moisture, this product will remain stable for 6 months from production date.

Physical Properties			
Over all Density	40 - 42	kg/m^3	DIN 53420
Compressive Strenth @ 10% Deformation (Parallel)	> 250	KPa	ASTM C165
Dimensional Stability@ - 20 °C, Volume change	≤1	% Volume	DIN 53431
Dimensional Stability@ + 70 °C, Volume change	≤1	% Volume	DIN 53431
Closed Cell Content	> 90	%	DIN 52616
Initial Thermal Conductivity	0.022 - 0.023	W/m°K	DIN 52616
Fire Behavior	B3	Class	DIN 4102-2

Packaging

POLYREX SP 30/4 B2 : 220 KG Metal Drums

Isorex R 310/1: 250 KG Metal Drums

POLYCOAT RBE 10

Rubberized bitumen emulsion

Tough and flexible vapor proof protective coating

CHARACTERISTICS

- Cold applied
- Single component, easy to apply
- Can be applied on damp substrates
- Can be applied in closed or confined areas.
- Water based
- Good resistance against chloride and sulphate ions
- Has good adhesion to most building substrates
- Seamless/joint free

DESCRIPTION

Polycoat RBE 10 is an emulsified rubber modified bitumen coating, which dries to form a tough, seamless, flexible vapor proof protective coating. Polycoat RBE 10 conforms to the requirement of ASTMD 1227 Type III, class 1

FIELDS OF APPLICATION

Can be used for a wide variety of applications, which includes the following:

- protective coating on concrete foundations
- curing compound on freshly cast concrete structures
- dampproof membrane in sandwich constructions
- vapor proof barrier coating for interior & exterior floors & walls

APPLICATION INSTRUCTIONS

The application temperature should be between 5°C to 55°C. Application procedures may vary slightly depending upon site conditions. The general recommended guidelines for the application of the bitumen coating system is as follows:

Surface preparation

The surface shall be cleaned thoroughly of all contaminants like dust, traces of curing compound, oil and grease. Light mechanical grinding/grit blasting/high pressure water jet may be used to clean the surface of all the contaminants depending on the degree of contamination on the surface to be coated. All surface imperfections and protrusions shall be removed and repaired. Structurally unsound and friable concrete must be removed and repaired with a suitable Polycrete* concrete repair mortar.

TDS_Polycoat RBE 10_GCC_1116

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Priming

It is highly recommended to apply a priming coat prior to the application of the Polycoat RBE 10 coating on the substrate. The primer can be prepared in the site by diluting Polycoat RBE 10 with 20% water and applying this diluted coat as the primer. For very dry and porous substrates apply two coats of this primer. The primer can be applied to damp or freshly cast concrete surfaces also. However, it should not be applied on waterlogged or flowing water areas. Further coats shall be applied only after the primer coat dries off completely. In case of delay in application of the top coat for more than 24 hours, a fresh coat of primer shall be re-applied.

Foundation Dampproofing

Stir the contents of the drum thoroughly before application to remove all sediments. Depending on the dry film thickness required, apply the rubberized bitumen coating @1–4m²/L./coat. On vertical areas, it is recommended to apply the coating in multiple layers in order to avoid sagging of the heavy bodied coating. Subsequent coats shall be applied only after the previous coat dries off completely and shall be applied at right angles to the

previous coat. Clean dry sand may be broadcasted onto the wet coating to provide a key for the subsequent coats and achieve a greater dry film thickness. The coating should be applied and finished up to the DPC level. If a plaster or cement render is to be applied on the bitumen coated surface, clean dry sand shall be broadcasted on to the coating whilst it is still wet. Leave the coating for curing for a minimum period of 48 hours before applying any protection board or backfilling. Care shall be taken to ensure that the first coat is not punctured during the application of the second coat. However, if the coating is damaged, the area can be readily over coated provided the surface preparation is done properly.

Protection

Polycoat RBE 10 coating should be protected from getting damaged due to the ongoing site activities and during backfilling. Coating laid on horizontal surfaces can be protected either by a cement sand screed (50mm thick) or by an asphaltic protection board (Bituboard)*. On vertical surfaces the membrane has to be protected with Bituboard. Bituboard can be fixed on the membrane by a double sided bitumen adhesive tape (Watertite TS 15)*.

COVERAGE

The coverage varies depending on the type of use:

general use : 4 m^2/L/coat
curing compound : 5 m^2/L/coat

CLEANING

Clean all tools immediately after use with water. Hardened material can be cleaned with a solvent.

STORAGE & SHELF LIFE

The drums must be stored in a covered area, away from direct sunlight, UV and other sources of heat.
The shelf life of the product is up to 12 months if stored as per the recommendations. Excessive exposure to sunlight and UV will result in the deterioration of the product and reduce its shelf life.

HEALTH & SAFETY

As with all bitumen products, caution should always be exercised. Protective clothing such as gloves and goggles should be worn. (See packing for specific instructions). Treat any splashes to the skin or eyes with fresh water immediately. Should any of the products be accidentally swallowed, do not induce vomiting. Call for medical help immediately. Ensure that the container is available for medical attendant to examine any relevant instructions and content details.

SUPPLY

Polycoat RBE 10		20L pail & 200L drum
Bituboard	3.2 mm	2m x 1m, wt 7.7kg#
	6.0 mm	2m x 1m, wt 14.0kg#
Watertite TS 15		10m x 50mm, wt 0.60kg#

**Refer to website for TDS* *# Approximate weight*

TECHNICAL SPECIFICATION

PROPERTIES	VALUES	TEST STANDARDS
Color	Dark Brown	-
Form	Thixotrophic viscous liquid	-
Density, [g/cc]	1.02±0.02	ASTM D 2939
Solid Content, [%]	40±5 approx	ASTM D 2939
Drying Time [min]	60	-
Application temp, [°C]	5 to 55	
Service temp, [°C]	-5 to 75	

All values given are subject to 5-10% variation

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Technical Data Sheet

AWAZEL TEX 120

High performance, needle punched, non-woven Geotextile fabric

DESCRIPTION

Geo-textile fabric is a high performance polymeric non-woven stable fibre based on polyester with a high degree of dimensional stability. It is used as a separation, filtration and moisture barrier.

FEATURES

- Excellent resistance to chemical compounds and salts normally present in the soil.
- Excellent UV resistance
- Durable and easy to install
- Remarkable resistance to aggressive attack of salts and chemicals
- Good tear and puncture resistance

FUNCTION

Geotextiles are used to provide protection, filtration, separation, and reinforcement and drainage functions in soil, rock and waste materials. They are also specifically used as separation and protection layers within structural waterproofing system, protection and moisture mats within the roofing system.

INSTRUCTIONS FOR APPLICATION

The geotextile fabric can be loosely laid depending on type of application and site conditions. The surface generally should be clean and free from debris and large cavity. For roof applications, geotextile should be applied upon clean substrate, either thermal insulation board or waterproofing membrane.

HEALTH & SAFETY

All safety measures should be taken during application. Fire extinguishers should be available on the site. Workers should wear personnel protective tools such as gloves and goggles during application.

PACKING

It is produced in rolls of 2.9 x 100 meters. The rolls are wrapped with double PE foil.

STORAGE & MATERIAL HANDLING

The rolls should always be stored in a shaded area and not to be left on direct sunlight for more than 14 days.

GT021604

AWAZEL TEX 120

High performance polymeric non-woven Geotextile fabric

TECHNICAL DATA

Properties	Typical Data	Test Method
Tensile strength (kN/m)	4.0	ASTM D 4595
Elongation (%)	>50	ASTM D 4595
Grab tensile strength (N)	260	ASTM D 4632
Grab tensile elongation (%)	>55	ASTM D 4632
Mass/unit Area (gsm)	120	ASTM D 5261
Thickness (mm)	0.9	ASTM D 5199
Trapezoidal Tear Strength (N)	110	ASTM D 4533
Puncture strength (CBR) (N)	800	ASTM D 6241
Flow Water Rate -5cm head(l/m2/sec)	95	ASTM D 4491
AOS (microns)	100	ASTM D 4751
UV Resistance @ 150 hrs (% Strength Retained)	>85	ASTM D 4355
Roll Size, (Width)	2.9 mts.	Nominal
Roll Size, (Length)	100 mts.	Nominal

Sales Offices - Tel.#: 011- 4782876 (Riyadh), 012 - 6601740 (Jeddah), 013 - 8341853 (Dammam),
Intl. Sales Offices : Tel.#: +971 4 - 3390600 (Dubai), +965 - 25712223 (Kuwait), +974 - 44420571 (Qatar)

STEICO *bitumen*

Expansion Joint Filler Board
Protection Board

solution for **concrete** work and
water proofing membranes

with 10%, 20% or 35% bitumen

| APPLICATION AREAS

Expansion joint filler for concrete slab and wall construction

Protection board for pressure-sensitive layers

Insulation board for wet screed and dry screed applications

- Produced and supervised according to current European & American standards
- Standard sizes and customized panels and strips
- Easy processing with common tools
- Production certified according to ISO 9001:2008

For more information please visit our website at **www.steico.com**

STEICO SE – the group for …

wood fibre insolation & building products

The STEICO Group is the world leader in the manufacture and sale of wood fibre insulation materials and employs around 1000 people.

The headquarters of STEICO SE are located in Feldkirchen near Munich to manage the group, sales, technical advice and research and development. Production takes place at three European sites - Czarnków (Poland), Czarna Woda (Poland) and Casteljaloux (France). STEICO group also has two sales offices in France.

All the products manufactured by STEICO are certified under the banner of the FSC® (Forest Stewardship Council®) to guarantee our commitment to producing environmentally and ecological products.

Our knowlageable staff and technical support offers you the guarantee of the best advice about the products and applications. In addition, we work closely with our distributors to provide local expertise and on site support.

FSC
www.fsc.org
FSC® C126750
The mark of responsible forestry

| PRODUCT DESCRIPTION

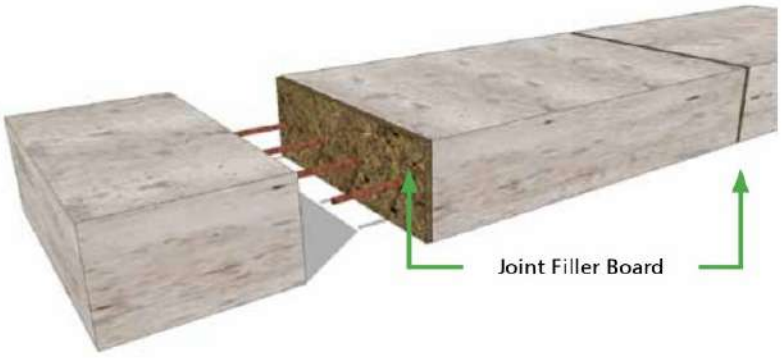
STEICO's Expansion Joint Filler Boards and STEICO's Protection Boards are woodfibre softboards impregnated with bitumen. This process gives the boards a high water resistance, high compression strengths and an extraordinary long durability.

STEICO*bitumen* is only manufactured with European timber from strictly controlled and sustainable forests. In its application as an Expansion Joint Filler Board, STEICO bitumen boards one of highest quality and find their use in all types of Expansion Joints.
Typical it is used in North America, in the UK and in the Middle East and thus it complies with the ASTM and the BS Standards.

STEICO's Protection Board complies with the same standards and shows the same high quality features. It is used as a protection board for membranes in the waterproofing technology.

STEICO's highest requirements on product development and production standards assure products of highest quality.

| EXPANSION JOINT FILLER BOARD



FILLER BOARDS IN CONCRETE SLABS:

- airport aprons & taxiways
- roads
- retail parks
- etc.

| PROTECTION BOARD

PROTECTION BOARDS TO WATERPROOFING MEMBRANES:

- basements
- retaining walls
- lift pits
- etc.

| FORMATS STEICO*bitumen*

available thickness [mm]	available dimensions [mm / ft.]		
8, 10, 12, 15, 18, 19, 25	1220 * 2440 4' * 8'	1220 * 2200 4' * 7'2	1220 * 2135 4' * 7'

cut strips according to specifications

| INGREDIENTS

Wood fibre, bitumen, water repellent ingredients, paraffin

| ADVICES

STEICO*bitumen* should be stored flat and dry on a level surface

Transport packaging should only be removed when the pallet is on a safe and level surface

Protect edges from damages

Carry single boards vertically

One way pallets

| REFERENCES

Mall of the Emirates
Dubai/UAE

Dubai Festival City - Development
Dubai/UAE

Abu Dhabi YAS Island
Abu Dhabi/UAE

King Abdullah Financial District
Kingdom of Saudi Arabia

King Saud University
Kingdom of Saudi Arabia

Bahrain International Circuit
Bahrain

Oman Convention & Exhibition Centre
Oman

Barwa Commercial Avenue
Qatar

New Doha International Airport Project
Qatar

Regional connector Transit Corridor
Los Angeles CA, USA

McCarran Airport
Las Vegas, Nevada, USA

Philadelphia PA Airport, USA

| CHARACTERISTIC VALUES STEICO*bitumen*

Produced and supervised according to EN 13986	
Porous wood fibre insulating board according to EN 622-4	
Fire class according to EN 13501-1	E
Bitumen content [%]	10 / 20 / 35
Density [kg/m³]	approx. 230 (10 %, 20 % bitumen) at least 310 (35 % bitumen)
Complies with ASTM D 1751-04 Test procedure according to ASTM D 545-99	for the requirements of compression / extrusion / recovery

| SPECIFICATION STEICO*bitumen*

Property	for nominal thickness of < 13 mm	for nominal thickness of ≥ 13 mm	
Board Compositon (ASTM D 1751-04)	Ligno-cellulosic fibres, asphalt		✓
Resistent to handling (ASTM D 1751-04)	Must not deform or break under normal handling		✓
Stress required to compress the test specimens to 50 % of normal thickness (ASTM D 1751-04)	P ≤ 8618 kPa	689 kPa ≤ P ≤ 5175 kPA	✓
Weight loss during 50 % compression (ASTM D 1751-04)	≤ 3 %		✓
Recovery within 10 min after 50 % compression (ASTM D 545-99)	≥ 70 %		✓
Extrusion at 50 % compression (ASTM D 545-99)	≤ 6,4 mm		✓
24 h Volume water absorption (ASTM D 545-99)	≤ 20 %	≤ 15 %	✓

Production certified accor. to ISO 9001:2008

STEICO
engineered by nature

Your STEICO Distributor

ANTHON B NILSEN

www.steico.com

Date 08/2016. Valid to subsequent revisions.

Polyboard

Bitumen impregnated compressible fibre filler board

Excellent recovery with thermal insulation property.

CHARACTERISTICS

- Multi-purpose bituminized softboard made from natural wood fibres for roof, wall and floor in concrete and timber constructions
- Excellent recovery after 50% compression
- Good thermal insulation properties
- Available in various bitumen contents
- Easy to install

DESCRIPTION

Polyboard is a compressible bitumen impregnated fibre board for expansion joints. The impregnated softboard is made from natural wood fibres chips and proprietary materials, mechanically reduced to fibres which are then pressed to form a continuous sheet. Bitumen is incorporated into the board during manufacture to improve its moisture resistance and durability.

FIELDS OF APPLICATION

- external wall cladding: filling structural expansion & structural separation joints in block & insitu concrete construction.
- trafficable surfaces: filling expansion joints in motorways, runways, pedestrian areas, bridges, kerbs.
- internal surfaces: filling expansion joints across concrete floors, including screed floors.
- roofs & floor finishes: ideal for filling expansion joints in concrete floors.
- Building superstructures: filling expansion joints in basements, retaining walls, site slabs, subways & other water excluding structures.
- reinforced concrete structures: expansion joint fillers in piers and lateral supports like abutments.
- expansion strips: against existing or between adjacent constructions and insets in concrete paving like drains, manholes.
- internal finishes: Various other flat works and concrete floors.

TDS_Polyboard_GCC_0518

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- protection of waterproofing membranes and coatings from mechanical abuse and against backfill.
- protection board for pressure-sensitive layers

SPECIFICATION COMPLIANCE

Wood fibre insulating board produced complies with the pertinent type requirement of ASTM D 1751 (compression, extrusion and recovery only). Production standard as per DIN EN 13986 / DIN EN 622-4

INSTALLATION PROCEDURE

When used to form movement joints in in-situ concrete, Polyboard can be positioned next to the shuttering before casting or can be bonded to the adjacent concrete with an appropriate adhesive. The softboard must be protected on external faces by a compatible weather resistant sealant. Polyboard up to a thickness of 19mm can be cut using a stable knife and a guide bar for a straight edge after cutting. To avoid tearing in the reverse face, the cut should be made onto a flat rigid backing material. Boards thicker than 19mm should be cut with a portable electric circular saw.

Protection

Polyboard can be fixed to protect waterproof membrane with a suitable adhesive like Bitubond N or by suitable approved mechanical fixing methods.

STORAGE

Store the boards in a cool, dry and shaded area. The boards should be stacked on a pallet which should be placed on a flat area. Keep away from sharp edges and protect the edges from getting damaged. During installation carry single boards vertically.

HEALTH & SAFETY

There is no health hazards associated with Polyboard in normal use. Polyboard is combustible and will catch fire if exposed to flame or other sources of ignition.

SUPPLY

Polyboard	12mm 19mm 25mm	1220mm x 2200mm

TECHNICAL SPECIFICATION

PROPERTIES	VALUES	TEST STANDARDS
Density, [kg/m^3]	>220	-
Color	Brown	-
Surface	Un sanded	-
Maximum extrusion at 50% compression, [mm]	<1	ASTM D 1751
Recovery at 50% Compression, [%]	>70%	ASTM D 1751
Compression at 50%, [psi]	>100	ASTM D 1751
Brittleness	No crack	ASTM 994
Bitumen content, [%]	10	ASTM D 545

All values given are subject to 5-10% tolerance

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Quality for Professionals

MIX DESIGN

No.	20126	Strength Class	C16/20
Code	20N300DF2O	Reference	

Material	Source	Sp. Gravity	Abs. %	Kg/M^3	Lt/M^3
CEMENT-OPC	UNION CEMENT CO -RAK	3.150		300.00	95.240
DUNE SAND 0-1 MM	UMM AL QUWAIN	2.630	0.900	290.00	110.270
CRUSHED AND WASHED 0 - 5 MM	HAJAR MOUNTAIN LIMESTONE	2.680	0.700	830.00	309.700
CRUSHED AGGREGATE 5 - 10 MM	HAJAR MOUNTAIN LIMESTONE	2.690	0.600	860	319.700
FREE WATER	DURAT AL-KHALEEJ -RAK	1.000		155.00	155.000
POLYPROPYLENE FIBRE	CREATIVE CONCRETE	0.910		0.60	0.660
CONPLAST RP264 /	FOSROC	1.200		2.80	2.330
IAPEPLAST RP95	MAPEI CONSTRUCTION	1.120			
TOTAL ABSORPTION				14.00	
PLASTIC DENSITY				2452.00	992.900
AIR CONTENT					7.000
TOTAL					1000.000
WATER/CEMENT RATIO				0.52	
AGGREGATE/CEMENT				6.60	
SLUMP INITIAL					MM
SLUMP AFTER 45 MTS				100+/-25	MM
MINIMUM COMPRESSIVE STRENGTH EXPECTED AFTER 7 DAYS (fck,cube)					N/MM2
MINIMUM COMPRESSIVE STRENGTH EXPECTED AFTER 28 DAYS (fck,cube)				20.00	N/MM2

RAPID CHLORIDE PERMEABILITY	WATER PENETRATION	WATER ABSORPTION	INITIAL SURFACE ABSORPTION
(AASHTO T-277:93 / ASTM C 1202:2005)	(BS EN 12390 PART 8:2000)	(BS 1881: PART 122:1983)	(BS 1881: PART 208:1996,C1.6,1.3.1)
COULOMBS	MM	%	ML/M2.S

Prepared by ENG.KANNAN **Approved**

Notes :

Mix design based on BSEN 206:2013,BS 8500-1:2006,BS 8500-2:2006

Aggregate proportions may change to meet the target line

Compressive strength refers to cube strength obtained from cubes made,water cured and tested as per relevant standards

Additional superplasticiser will be added at site to improve workability if necessary, under skilled supervision

Water Content in the admixture is cosidered in the calculation of water/cement ratio

Rev No 2 27/02/2019

Gulf Concrete & Blocks RAK UAE

weber backing rod Formerly "HBR.Backing ROD"

WATERPROOFING

Extruded polyethylene backing rod foam

PRODUCT

weber backing rod is a round, flexible, backing rod made of extruded polyethylene foam. It is available in a variety of diameters to fill expansion joints.
weber backing rod is chemically inert, and resistant to oils, gasoline, and solvents.
It does not stain or adhere to sealant materials, acts as a bond-breaker-strip.
weber backing rod has a resilient closed-cell structure and is non-exuding.

SCOPE OF USE

weber backing rod is a backing for elastomeric and other cold-applied sealants. It is used in expansion or contraction joints to:

- Control the depth of applied sealant.
- Act as a barrier interface to prevent three sided adhesion (bond breaker)
- Provide a form to assist the sealant in developing the hour glass shape.

Typical uses are in glazing and expansion joint applications for windows, certain walls, expansion wall joints, partitions, doors, setting cracks, pavements, precast units, and copings.

LIMITATIONS

weber backing rod should not be used with hot-melt adhesives and sealants where their temperature is over 70 C (160 F)

CHARACTERISTICS

TYPICAL PHYSICAL PROPERTIES		
Property	Nominal value	Test method
Density	2.0 lbs/ft³	ASTM D 1622
Tensile strength	25 psi	ASTM D 1623
Water absorption	0.5% by vol.	ASTM c 509
Compression deflection	25% at 8 psi	ASTM D 1621

INSTRUCTIONS FOR USE

SURFACE PREPARATION

Joint should clean, moisture free, and clear of any obstruction.

PRODUCT APPLICATION

Either cut the desired length of **weber backing rod** or dispense directly from reel. Position **weber backing rod** in the joint at the depth specified by the sealant manufacturer or architect.

Using a blunt tool or roller, press the rod uniformly into the joint at the specified depth. Apply the sealant over **weber backing rod** according to manufacturer's directions.

PACKAGING

Leb	Syria	Jordan	UAE	Qatar	Kuwait	KSA	Oman
35 & 45 mm diam.	35 & 45 mm diam.	35 & 45 mm diam.	35 & 45 mm diam.	35 & 45 mm diam.	35 & 45 mm diam.	35 & 45 mm diam.	35 & 45 mm diam.

PRECAUTIONS

Do not puncture, over compress or stretch **weber backing rod** during insertion.

RECOMMENDED weber backing rod SIZE PER JOINT WIDTH

Joint Width (mm)	HBR Diameter(mm)
< 5	6
6	10
10	12
12	16
16	20
20	25
22	30
35	40
45	50

SIZES AND PACKAGING DATA		
HBR Diameter (mm)	Feet per carton	Gross weight lbs per carton
6	2150	15
10	1200	15
12	835	15
16	517	15
20	367	15
25	185	15
30	135	15
40	257	35
50	175	35

DISCLAIMER

While the company guarantees its products against defective materials, the use and application of these products are made without guarantee since the conditions of their application are beyond its control. It is recommended to verify with the company that the product is suitable for the intended use, and that this Data Sheet version is the latest one. The company may modify it without prior notice. Technical characteristics are listed for guidance only. For more information, please contact the company's office in your location.

NOTE

PG.29

MasterSeal® NP 473U

Single component, moisture curing polyurethane, multi-use elastomeric joint sealant for horizontal & vertical applications

DESCRIPTION

MasterSeal NP 473U is a high performance, one component, moisture curing, polyurethane construction sealant. It has been formulated with an optimum range of physical properties such as high elasticity and movement accommodation, non-sag, Shore A hardness, tensile / tear strength and modulus to make it perfectly suited for sealing dynamically moving joints in a wide range of internal and external, horizontal and vertical applications, making it almost the perfect "Universal" joint sealant.

TYPICAL APPLICATIONS

- Expansion and movement joints in floors and walls
- Dynamically moving joints in concrete and masonry substrates
- Precast concrete joints
- Jersey barriers and similar
- Shopping malls and other pedestrian areas
- Warehouses and light industrial factories
- Schools, universities, galleries, office buildings, hospitals, clinics etc.
- Irrigation channels and water tanks (when used with suitable primer)

ADVANTAGES

- Primer-free on dry concrete in non-submerged conditions
- Single component, easy to apply
- Non-shrink, non-sag, gun grade for vertical use
- Durable, resilient seal
- Can be over painted after curing when applied on concrete or blockwork substrates.
- Forms a smooth blister free surface when applied onto dry substrates
- Good resistance to dilute acids and alkalis
- Different colours available

PACKAGING AND COLORS

MasterSeal NP 473U is supplied in 600ml sausage.
20 sausages / box and 60 boxes/pallet.
MasterSeal NP 473U is available:
Concrete Grey (RAL 7004), Off White (RAL 1015) and White (RAL 9010)
Note: The colours mentioned are closest match to the RAL Nos.

STANDARDS

Conforms to:

- ASTM C920 Type S, Grade NS, Class 25, Use T, NT, A, G, M, O and I
- ISO 11600 Classification F 25 LM

TYPICAL PROPERTIES*

Skin formation time (23°C, 50% RH)	<70 minutes
Rate of cure in mm 24 hours (23°C, 50% RH)	2-3mm
Resistance to flow 23°C ISO 7390 50°C ISO 7390	≤ 3mm ≤ 3mm
Shrinkage (ISO 10563)	≤ 10%
Temperature of application	+5°C to +40°C
Specific gravity	1.25
Shore A hardness ASTM C661	31-34
Tear strength (23°C / 50% RH)	6N/mm
E-Modulus at 100% (23° C / 50% RH)	0.4N/mm²
Elongation at break (23° C / 50% RH)	>500%
Elastic recovery (23° C / 50% RH)	>70%
Vertical slump ASTM C639	Nil
Movement capability ASTM C719	±25%
Service temperature	-40°C to +70°C
Effects of accelerated Weathering ASTM C793-05 250 hours UV	No cracking and loss of adhesion

MasterSeal® NP 473U

APPLICATION GUIDELINES

SURFACE PREPARATION

To ensure excellent adhesion the joint profile including the arises should be clean, sound, dry and free from any loosely adherent material which could prevent adequate bond to the substrate. Closed cell cylindrical backer rods with a surface skin of correct size to control sealant depth should be used. Diameter of backer rod should be 25% more than joint width to ensure it is fitted tight in the gap. Bond breaker tape is recommended to prevent sealant from adhering to rigid, inflexible substrates at the back of the joint where space is insufficient to install closed cell backer rods. Joint sizes are designed to suit movement capacity of sealants. Recommended maximum joint size for horizontal is 30mm and for vertical 35mm. Depth of joint sealant should be half of width in joints greater than 15mm. Please Consult Master Builders Solutions Technical services for further clarification if required.

PLACING / APPLICATION

MasterSeal NP 473U shall be applied using a conventional sealant application gun, ensuring enough sealant is applied to facilitate the correct width to depth ratio for the joint. Ensure sealant is applied in a uniform, continuous ribbon, without gaps or air pockets. For vertical joints, it is recommended to apply the sealant from bottom to top for avoiding air pockets. Following the application, the sealant should be tooled into place to create a neat, slightly concave to ensure adequate adhesion with the joint profile is achieved.

CHEMICAL RESISTANCE

MasterSeal NP 473U has resistance to:

Dilute acids and alkalis	Medium
Saline solutions	Excellent

CLEANING

It is recommended that **MasterSeal NP 473U** be removed immediately from tools etc. using a solvent (toluene or xylene) before curing takes place. Cured material can only be removed by mechanical means.

COVERAGE / YIELD

Applicable joint length with a 600ml cartridge (in meters)

Joint depth (mm)	Joint width (mm) approx.				
	4	**6**	**8**	**12**	**20**
4	37.5	25	18.7	12.5	7.5
6	-	16.6	12.5	8.3	5.0
8	-	-	9.3	6.2	3.7
10	-	-	-	5.0	3.0

WATCHPOINTS

Any spillage over the joints should be immediately cleaned using solvent before the material is cured to eliminate staining of adjacent finishes. For horizontal trafficable joints, it is recommended to apply the sealant to a level at least 1.5 -3mm below the adjoining surfaces to avoid the wheels of the vehicles picking the sealant. For all applications ensure sealant is adhered only to the 2 sides of the joint and prevent 3-sided bonding.

Long term UV exposure may cause **MasterSeal NP 473U** to discolor. This does not affect the **MasterSeal NP 473U** performance.

STORAGE AND SHELF LIFE

MasterSeal NP 473U has a shelf life of 9 months from production date when stored in its original packaging at temperatures between 5°C and 25°C.

MasterSeal® NP 473U

HEALTH AND SAFETY

Contains isocyanates, contact with the skin or eyes should be avoided, if ingested, DO NOT induce vomiting. Seek medical attention immediately. Refer to product MSDS.

QUALITY AND CARE

All products originating from Master Builders Solutions Dubai, UAE facility are manufactured under a management system independently certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001, ISO 14001 and ISO 45001.

* Properties listed are based on laboratory controlled tests.

® = Registered trademark of the MBCC Group in many countries.

MBS_CC-UAE/SI_473U_11_17/v1/

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P.O. Box 37127, Dubai, UAE
Tel: +971 4 8090800
www.master-builders-solutions.com/en-ae

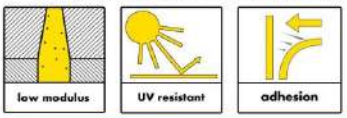
Polyseal 1PU

One part polyurethane joint sealant

Highly flexible, non-staining paintable joint sealant with excellent recovery.

CHARACTERISTICS

- Highly resilient with excellent recovery characteristics
- Provides permanent and uniform watertight seal
- Excellent adhesion to most building substrates. Can be used without the use of primer in new substrates
- Non-toxic. Can be used in potable water reservoirs and swimming pools
- Easy to apply, one component sealant. No mixing required
- Overpainting can be done (Rigid paints may crack)



DESCRIPTION

Polyseal 1PU is a one part low modulus high performance polyurethane sealant, which cures on absorption of atmospheric moisture to form a firm and flexible rubber watertight seal for moderate movement and control joints. Polyseal 1PU can be used in both horizontal and vertical applications. The sealant has a Movement Accomodation Factor (MAF) of ±25%.

FIELDS OF APPLICATION

- concrete expansion joints
- precast concrete cladding
- brick cladding
- perimeter caulking (windows, doors, aluminium frames)
- expansion and constructions joints in water retaining structures
- curtain wall joints
- parapet walls

APPLICATION INSTRUCTIONS

Joint preparation

The joint edges must be clean, dry and free from oil, loose particles, cement laitance and other contaminants which may affect the adhesion. A thorough wire brushing, grinding, sand blasting or solvent cleaning may be required to expose a clean and sound substrate. When applied on glazed surfaces like ceramic or terrazzo tiles or porcelain enamel joint surfaces, the glaze should be removed by abrading with sandpaper or wire brush.

Priming

On new substrates, the sealant can be applied without Primer. However, for old and very porous substrates apply Polyprime PS*. When applying on aluminium and metal surfaces, ensure the surface is cleaned of all lacquer or protective coatings. Galvanized, copper and stainless steel surfaces shall be primed with Polyprime NP*.

Back-Up Material

A bond breaking backing rod (Polyrod)* shall be inserted into all movement joints to avoid a three sided adhesion. A bond breaking tape may be applied to joints where the depth does not allow the application of the backing rod.

APPLICATION

Polyseal 1PU is available in a ready to use self contained sausage which can be loaded onto a barrel gun. Start extruding the sealant into the joint firmly by maintaining an even pressure on the trigger of the gun. On vertical joints, sealant extrusion shall start from the bottom of the joint and continued to the top. Once the sealant has been installed a suitable rounded tool can be used to achieve a smooth hour glass profile. DO NOT USE SOAPY WATER SOLUTION. Any masking tape applied should be removed immediately after the sealant is installed.

CLEANING

Remove all excess sealant with a scraper. Any spillage can be cleaned using Polysolvent. Clean all tools and equipments using similar solvent immediately after the tooling. Hardened materials can be removed mechanically only.

LIMITATIONS

Polyseal 1PU is not recommended for:

- Movement joints having MAF >25%
- Damp and contaminated surfaces
- Asphalt pavements
- When overpainting check paint compatibility with sealant
- External application with white / off white colour will result in yellowing on exposure to UV.
- Joints width > 25mm

JOINT DESIGNS

The width of the joint should be a minimum of 4 times the anticipated movement. Joints with cyclic movement should have a width to depth ratio of 2:1 for butt joints and 1:1 for static and lap joints. The joint depth shall not exceed the width. The joint width and depth should be maintained as recommended:

Joint Width

- 6 mm (Minimum)
- 25 mm (Maximum)

Joint Depth

- 6 mm (Minimum)
- 15 mm (Maximum)

COVERAGE

Length of joints in meters filled per 600 ml sausage of Polyseal 1PU

Depth [mm]	Width [mm]				
	6	10	15	20	25
6	16.6	10	6.7		
10		6	4	3	
15			2.7	2	1.6
20				1.5	1.2
25					1

 # Calculation based on theoretical coverage. Actual material consumption at site will vary depending on the wastage.

STANDARDS

Polyseal 1PU complies with the requirements of: BS 5212: Part 1, ASTM C 920 [Type S, Grade NS, Class 25] Federal Specification TT-S-00230C [Type II, Class A]

STORAGE & SHELF LIFE

Store in a cool, dry place and keep away from all sources of heat and sunlight. In tropical climates, store in air condition rooms. Usage: Best before 12 months from manufacturing date. Excessive exposure to sunlight, humidity and UV will result in the deterioration of the quality of the product and reduce its shelf life.

HEALTH & SAFETY

As with all construction chemical products caution should be exercised. Adequate ventilation should be provide at the place of work. Refer the product MSDS for full details. Protective clothing such as impervious gloves and goggles should be worn. Treat any splashes to the skin or eyes with fresh water immediately. Should any of the products be accidentally swallowed, do not induce vomiting, but call for medical assistance immediately.

SUPPLY

Polyseal 1PU	600ml (12 sausages/carton)
Polyprime PS	1L pail
Polyprime NP	1L pail
Polysolvent	5L & 20L pails
Ancillaries/equipments	Polyrod, barrel gun

** Refer to website for TDS*

TECHNICAL SPECIFICATION

PROPERTIES	VALUES	TEST STANDARDS
Color	White/offwhite /Beige/Grey (Other colors on request)	-
Density, [g/cc]	1.2±0.1	-
Viscosity	Thixotropic paste	-
Shrinkage	Negligible	ASTM C 531
Shore 'A' Hardness @ 7days	20-35	ASTM C 920
Adhesion to concrete, [N]	>25	ASTM C 794
Elongation, [%]	>250	ASTM D 412
Chemical resistance	pH 2.5 to 11.5, sea water	ASTM D 543
Skinning time @standard condition, [hours]	24maximum	-
Curing rate	1mm per day	-
Application temperature, [°C]	+5 to +40	-
Service temperature, [°C]	-20 to +80	-

All values given are subject to 5-10% tolerance

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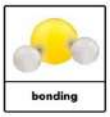
Polybond PVA

PVA based bonding agent and admixture

used as a surface sealer, bonding agent and admixture for cement and mortar.

CHARACTERISTICS

- Bonds to most common construction material except PVC rubber and similar products
- Versitile
- Enhances adhesion
- Increases strength



FIELDS OF APPLICATION

- Adhesive
  Polybond PVA bonds with almost all kinds of building materials except PVC, rubber and polyethylene. When added with suitable filler, it can be used for fixing plasterboard, ceramic tiles, marbles etc.
- Bonding Agent
  Polybond PVA gives mortars, especially topping mortars enhanced bond strength. The wear resistance of screed treated with Polybond PVA is improved than that of a conventional sand and cement screed. The topping will be dust free, wear, water, oil and grease resistant
- Admixture
  Polybond PVA has a plasticizing effect which improves mortar application, increases the mechanical strength of screeds and renders, reduces shrinkage and has perfect adhesion even on smooth concrete
- Surface sealer
  Polybond PVA can be used as a surface sealer for concrete and floors to minimize the dusting and penetration of oils. It can be used as an effective primer on certain decorative coatings

DESCRIPTION

Polybond PVA is a polyvinyl acetate based polyvinyl alcohol suspension used as a surface sealer, bonding agent and admixture for cement and mortar.

APPLICATION INSTRUCTIONS

As an adhesive for uneven surfaces
Make a paste of Polybond PVA diluted with equal amount of water, cement and fine sand. The paste can be applied as an adhesive for fixing plaster boards, polystyrene tiles. To ceiling and walls. If the surface is highly porous, apply a primer coat of Polybond PVA mixed with water in the ratio of 1:3.

As a bonding agent for screeds, plasters and renders
The surface shall be sound and free from all contaminants, such as oil, grease, paint etc. Sealing of the surface is done with 1 part of Polybond PVA with 3 parts of water. Apply the bonding coat followed by the application of the render, screed or plaster normally. The same method shall be used to bond new to old concrete.

As an admixture
For normal to heavy duty flooring, 20-30L of Polybond PVA is the recommended to be admixed with100 kg cement.

For heavy renderings and cementitious toppings
Seal and prime the surfaces with Polybond PVA diluted with 3 parts of water. Prepare the render coat with 1 part of ordinary portland cement, 1 part clean washed sand and 1 part of Polybond PVA to 3 parts of clean water. Apply this to the tacky prime coat. 10 to 15L of Polybond PVA per 100 kg cement is recommended.
Note: Stir the contents of the product thoroughly, before use

Quality for Professionals

LIMITATIONS:

- not recommended where permanent dampness occurs.
- do not use below 5°C
- do not over towel

CLEANING

Clean all the tools with water immediately after use.

STORAGE & SHELF LIFE

Store in a cool, dry place and keep away from all sources of heat and sunlight. In tropical climates, store in air condition rooms. The shelf life is up to 12 months in un-opened condition and if stored as per recommendations. Excessive exposure to sunlight, humidity and UV will result in the deterioration of the quality of the product and reduce its shelf life.

HEALTH & SAFETY

As with all construction chemical products, caution should always be exercised. Protective clothing such as gloves and goggles should be worn. Treat any splashes to the skin or eyes with fresh water immediately. Should any of the products be accidentally swallowed, do not induce vomiting, but call for medical assistance immediately.

SUPPLY

Polybond PVA	5L, 20L pails & 200L drum

DOSAGE

As an admixture	
Floor screeds/topping	20-30L of Polybond PVA per 100 kg cement i.e. 100-150L /m^3 of mortar approximately
Render coat	10-15L /100 kg cement
As a Primer /adhesive / bonding coat	
Neat	1L / 10 m^2
dilute1:1	1L / 20 m^2
dilute1:3	10-15L / 35m^2

These values will vary according to the degree of porosity and texture of the surface.

TECHNICAL SPECIFICATION

PROPERTIES	VALUES	TEST STANDARDS
Appearance	White viscous liquid	-
Solid content, [%]	30±3	ASTM D 2939
pH	6-7.5	BS EN ISO 787
Specific gravity	1.05±0.05	ASTM D 1475
Application temperature, [°C]	5 to 45	-

All values given are subject to 5-10% tolerance

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asianpaints

PRODUCT CODE 1048

SmartCare Damp Proof

Asian Paints SmartCare Damp Proof is a fiber reinforced elastomeric liquid applied water proofing membrane. It is formulated with select elastomeric and resilient acrylic polymers and reinforcing synthetic fibers. Upon curing, it forms a thick, seamless, durable membrane thus offering ultimate waterproofing.

WATER BASED

asianpaints
LEAD FREE* GUARANTEE

* All Asian Paints products contain no added Lead, Mercury, Arsenic or Chromium from April 2008.

PRODUCT BENEFITS

Water proofing
Waterproofing protection of up to 7 bars of positive hydrostatic pressure

Crack bridging
Unmatched crack bridging ability due to elastomeric properties

Mechanical strength
Reinforced with synthetic fibers for superior abrasion resistance

Adhesion
Strong adhesion to masonry substrates

Surface temperature reduction
Provides surface temperature reduction up to 10°C.
This property is applicable for terraces and only for white shade

Use & maintenance
Single pack, easy to apply and simple re-coating

High sheen
High sheen, brilliant white colour and thick coat results in high levels of heat reflectance

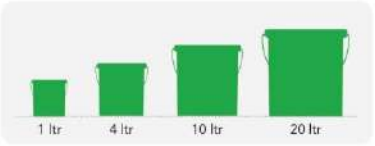
Anti carbonation
Reduces carbon dioxide and chloride ion diffusion thus protecting re-bars against corrosion

Warranty
8 years Waterproofing warranty on Terraces and up to 8 Years on vertical surfaces
(**Warranty years on vertical surfaces will depend upon top coat used, please refer to warranty booklet for more details)

**Surface temperature reduction: Temperature recorded from 1 pm to 3 pm with the aid of laser guided infrared non-contact thermometer, degree of surface temperature reduction will vary depending upon the surface & weather conditions

PRODUCT FEATURES

AVAILABLE PACKS



Shelf life: 3 years from date of manufacture in original tightly closed containers away from direct sunlight and excessive heat.

COLOURS AVAILABLE

White

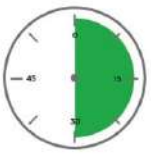
COVERAGE

RECOMMENDED SYSTEM
On RCC or plaster using brush or roller

Horizontal Surface 0.93 Sq. mtr/Ltr

Vertical Surface
Fresh painting: 2.32 Sq. mtr/Ltr
Re-painting: 2.79 – 3.25 sq. mtr/ltr

DRYING TIME TO TOUCH



4-6 HOURS

RECOMMENDED USAGE

Can be used for building roofs, terraces, parapet, sunshades and exterior vertical walls. It can also be applied on existing IPS, sound brick-bat coba or cementatious waterproofing.

HOW TO APPLY

PRE PAINTING STEPS

PLASTER New masonry surfaces must be allowed to cure completely. It is recommended to allow 28 days as the curing time for new masonry surfaces. The roof must have positive slope/ drainage system to avoid water ponding at places.

CLEANING Surface should be free from any loose paint, dust or grease. Remove all existing bitumen coatings completely. It is recommended to use Intense wire brushing, High speed water jet and vacuum cleaner for thorough cleaning of the surface to avoid "Peeling off" problems.

REPAIRING The substrate must be checked for its soundness using small hammer. All cracks at corner joints, channels and parapets should be properly treated.

FILLING FOR CRACKS For filling cracks upto 3mm use Asian Paints Crack Seal. Bigger cracks, damaged portions and hollow areas must be repaired with polymer modified cement mortars.

APPLICATION PROCESS

APPLICATION	CODE	THINNER	DILUTION %	APPLICATION VISCOSITY[1]	RECOATING PERIOD
HORIZONTAL SURFACE					
STEP 1 SELF PRIMING SMARTCARE DAMP PROOF BRUSH	1048	WATER	33%	N/A	4 - 6 HRS
STEP 2 FIRST COAT WATERPROOFING SMARTCARE DAMP PROOF BRUSH / ROLLER	1048	N/A	N/A	N/A	4 - 6 HRS
STEP 3 SECOND COAT WATERPROOFING SMARTCARE DAMP PROOF BRUSH / ROLLER	1048	N/A	N/A	N/A	4 - 6 HRS
VERTICAL SURFACE					
STEP 1 SELF PRIMING SMARTCARE DAMP PROOF BRUSH	1048	WATER	33%	N/A	4 - 6 HRS
STEP 2 FIRST COAT WATERPROOFING SMARTCARE DAMP PROOF BRUSH / ROLLER	1048	N/A	N/A	N/A	4 - 6 HRS
STEP 3 FIRST COAT APEX / ULTIMA BRUSH / ROLLER	0068	WATER	40%	N/A	4 - 6 HRS
STEP 4 SECOND COAT APEX / ULTIMA BRUSH / ROLLER	0068	WATER	40%	N/A	4 - 6 HRS

1. As measured through a Ford cup. 2. Apply an additional coat of Damp Proof in case of severe dampness. 3. For best results, strictly follow the dilution and forced coverage requirements.

ADDITIONAL INFORMATION

POST PAINTING CARE

For the best performance of the paint, ensure proper washing and cleaning of all algal and fungal growth, if any, at regular intervals of six months.

PRECAUTIONS

- Repair the hallow surface area before applying Damp Proof coat.
- For miscellaneous surface like tiling, smooth and glossy cementitious surface, product should be used with Asian Paints SmartCare Terrace Tile primer.
- For horizontal surfaces, use Asian Paints SmartCare Joints Tapes at all joints & corners for better reinforcement.
- For oily, existing failure coating surface, carry patch tests to check adhesion of product to substrate.
- The forced coverage leads to long term performance hence it is recommended to ensure coverage as per datasheet only.
- Do not apply during rains or extreme temperatures.
- Not recommended for rain water harvesting purpose.
- Avoid abuses which may lead to puncturing of membrane.
- Ensure that the product is applied at least 6 inches inside the drain pipe.
- For best results, apply coating on parapet walls as well.

TECHNICAL DETAILS

a. Form: Ready to use viscous liquid
b. Mix Density: 1.26
c. Application temperature: 5°C to 35°C

SAFETY FEATURES

- Kindly refer to the MSDS for Asian Paints SmartCare Damp Proof which gives detailed information on safety measures while handling the paint, which is available on request.
- Store the container with the lid tightly closed in an upright position, in a cool, dry place
- Keep out of reach of children and away from eatables.
- May be harmful if swallowed. In case of ingestion seek immediate medical attention.
- Wear eye protection during application. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- In case of skin contact immediately wash skin with soap and plenty of water. Get medical attention if irritation develops or persists.
- Do not breathe vapour or spray.It is recommended to wear suitable nose pad during sanding and surface preparation to avoid dust inhalation
- Do not pour leftover paint down the drain or in water courses.
- In the event of spills, contain spillage using sand or earth.
- No added Lead, Mercury or Chromium compounds.

TECHNICAL DATA

Appearance	Viscous liquid
Colour	White
Specific Gravity	1.25
Water Resistance	10
Alkali Resistance	8
Viscosity Sormer	122-134 KU
Solids by wt, %	54.6 - 60.4
Tensile Strength	2.82
Elongation	220
Adhesion to dry concrete	5.47
CBA, mm	1 mm (Horizontal)
Water vapour permeance	4.41
Anti Carbonation, R Value (@ 207 DFT)	275

Version No. VN 10/0/2021

BAUTECH CHEMICAL INDUSTRIES L.L.C.

BAUCOAT WP PLUS

Elastomeric Acrylic Waterproof and Protective Coating

DESCRIPTION

BAUCOAT WP PLUS is a single component, elastomeric, acrylic waterproofing and protective coating. Upon curing it forms a tough, flexible and durable coating which is resistant to UV and other weathering agents.

BAUCOAT WP PLUS is also used to protect exposed concrete structures against carbonation and chloride ion diffusion

TYPICAL USES

Used as waterproofing and protective coating for the following structures:

- Sloped concrete roofs, metal profile roofs & asbestos roofs
- Anti-carbonation coating in car park decks
- Protective coating on underpasses & concrete bridge decks
- Protective coating on polyurethane foam insulation

ADVANTAGES

- Single Component. Easy to Apply
- Protects exposed concrete structures against Carbonation and ingress of atmospheric gases and salts
- Good UV resistance
- Elastomeric -high crack bridging capability
- Good adhesion to most of the substrates
- Good resistance to dilute acids, alcohol, hydrocarbons, chloride and sulphate ions

TECHNICAL PROPERTIES

Color	White (Colours available on request)
Solid Content (by wt)	60 ± 3 %
Tensile Strength (ASTM D412)	1.5 N/mm² (+/-0.2)
Elongation (ASTM D412)	300 % (+/-20)
Hydrostatic pressure @5bar (50m)	Pass
Toxicity	Non-Toxic
Crack Bridging Ability	> 0.5 mm
Application Temperature	5 to 45 Degree C
Service temperature, [°C]	-20°C to 70° C

(The properties shown below were obtained under laboratory conditions)

All values given are subject to 10% tolerance)

APPLICATION INSTRUCTION

Application procedures may vary slightly depending upon site conditions. The general recommended guidelines for the application of the coating are as follows:

Surface Preparation

Concrete Surfaces

Clean the surfaces which shall receive the coating of all dust, dirt, moss, oil and grease, loose particles, cement laitance and all other deleterious materials which will affect the adhesion of the coating with the substrate. Cracks and potholes shall be repaired with concrete repair mortar from the SPADREP* range.

Metal Surfaces

Clean the surface of all rust scales. This can be achieved by wire brushing or grit blasting.

Priming

BAUCOAT WP PLUS shall be diluted with 20% water and applied as primer coat on the concrete surface to seal the pores and stabilize the surface.

The primer also functions as an adhesion promoter for the topcoats. This primer coat can be applied by a brush, roller or airless spray and allowed to dry completely before the application of acrylic coating.

Application

Mix the contents of the drum prior to the application to remove any sediment. BAUCOAT WP PLUS can be applied by soft bristled brush, roller or an airless spray.

When applying by airless spray, dilute the coating with approximately 5% water to reduce the viscosity of the coating.

Apply the first coat of undiluted material at a coverage rate of ***1 kg/m²/coat*** to get a Dry Film thickness of 0.5 mm.

It is important to ensure that each coat has cured completely before applying the next coat. The second coat should be applied at right angle to the first at the same coverage rate, to ensure a full unbroken coating to the substrate.

For improved strength and flexibility, embed a 65 g/m non-woven geo-textile membrane whilst the first coat is still wet on all corner joints, fillets and pipe penetration joints.

Allow the coating to cure fully for 7 days to achieve its full properties.

PACKAGING

BAUCOAT WP PLUS is supplied in 25 Kg Pails and 200 Kg Drum.

COVERAGE

1 Kg/m² at 0.5mm film thickness.

Two coats will give a combined thickness of 1.0 mm approximately.

STORAGE & SHELF LIFE

Store under cover, out of direct sunlight, clear of the ground on pallets and protect from extreme temperatures. In tropical climate the product must be stored in air-conditioned environment (<25°C).

Shelf life is 12 months when stored as above.

PRECAUTIONS

As with all construction chemicals products caution should always be exercised. Protective clothing such as gloves and goggles shall be worn. Treat any splashes to the skin or eyes with fresh water immediately. Should any of the products be accidentally swallowed, do not induce vomiting, but call for medical assistance immediately.

There are no known health hazards associated with BAUCOAT WP PLUS.

Clean all the tools with water after use. Hardened materials can be removed mechanically only. Allow the waste to cure. Seal it into a suitable container and bury in landfill as per the local regulations.

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BAUTECH CHEMICAL INDUSTRIES L.L.C.

BAUFLEX CW

2 Component Polymer Modified Flexible Cementitious Waterproof Coating

DESCRIPTION

BAUFLEX CW is a two-component polymer modified cementitious coating. The product may be trowel or brush applied to provide a flexible waterproof barrier.

TYPICAL USES

BAUFLEX CW may be used where there is a requirement to exclude water from a building or retain it within a structure. The material is particularly effective for

- Pile head waterproofing.
- Water proofing of potable water reservoirs, both interior and exterior.
- To provide protection for concrete against carbonation and chloride attack.
- Waterproof coating for roofs, concrete water tanks, lift well, inspection pits, swimming pools spillways, bathrooms, kitchens and other wet areas.
- Waterproof lining for water retaining structures
- General construction waterproofing. As a protective coating for foundations.
- As a backing to marble and granite to prevent water ingress and thus alleviate surface staining protection against brackish water
- Coating sea water channels
- Protection of concrete against carbonation and chloride ion attack

ADVANTAGES

- Excellent performance and flexible in nature, Good adhesion to most surface
- Non-toxic therefore suitable for potable water.
- Resistant to carbon dioxide and chloride ion diffusion. (Forms a film that provides an anti-carbonation coating over concrete.
- Can resist up to 7 Bars of pressure.
- Unlike conventional coatings which require 7 to 28 days cure of concrete, BAUFLEX CW can be applied to 24 hours old concrete, thereby giving immediate protection to the concrete.
- Allows the substrate to breath.

TECHNICAL PROPERTIES

Color	Grey (Colors on request)
Drying time	4 hours
Specific Gravity	1.85
Tensile Strength (N/sqmm)	1.4 (+/- 0.2)
Elongation (%)	50 (+/- 10)
Toxicity	Non-Toxic
Hydrostatic pressure @5bar (50m)	Pass

CHEMICAL RESISTANCE: BAUFLEX CW is resistant to chemical solvents & oils.

APPLICATION INSTRUCTION

Surface Preparation

The surface must be sound and free of oil, grease, dust and other unwanted residual material which will affect the bonding. The surface to be treated should be saturated with water prior to application but no standing water should be present.

Mixing

The material is supplied in two parts, and premeasured. On site mixing is needed. Take the liquid in a container and slowly add the powder to the liquid and mix using a slow speed drill fitted with a suitable paddle until a lump free creamy consistency is obtained. Do not mix more material than that can be used within 45 minutes. Never add water to loosen the material at any stage.

Application

Apply the first coat using enough material at a rate of 1 kg /m² to completely cover the holes, cracks etc. A soft bristled brush or trowel can be employed for this.

Once the first coat is dry, apply second and third coat to achieve the required thickness at an average rate of 0.7 to 0.9 kg/m² per coat. If necessary, embed an adhesive primer into the first coat and apply the second coat on top of it.

PACKAGING

Available in 20 kg kits.
Part A: 15 kg powder
Part B: 5 kg liquid.

COVERAGE

1.7 to 1.8 kg / m² / 1 mm thickness

STORAGE & SHELF LIFE

Store out of direct sunlight, clear of the ground on pallets, protect from rainfall. Avoid excessive compaction. Shelf life is 12 months when stored as above. Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging.

PRECAUTIONS

HEALTH & SAFETY: As with other products containing Portland cement, the cementitious material in BAUFLEX CW may cause irritation. In case of contact with eyes, immediately flush with plenty of water for at least 15 minutes. Call a physician. In case of contact with skin, wash skin thoroughly.

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Polyflex

Acrylic modified cementitious waterproofing coating

Two component, acrylic cementitious coating which cures to form a tough and flexible coating having excellent waterproofing properties.

CHARACTERISTICS

- Good flexibility. Thermal co-efficient of expansion similar to that of concrete
- Good adhesion to both, porous and non porous surfaces
- Good mechanical properties
- Suitable for light pedestrian traffic
- Excellent durability to long term weathering effect and UV exposure
- Non toxic, therefore suitable for use in potable water applications
- Resistant to carbon dioxide and chloride ion diffusion. (Forms a film that provides an anti carbonation coating over concrete. A 1mm coating provides anti carbonation cover which is equivalent to over 75 cm of concrete)

TDS_Polyflex_GCC_0519

1

DESCRIPTION

Polyflex is a two part acrylic modified cementitious coating for protecting concrete structures against water, vapor, ingress of chloride ions, attacks of acidic gases and alkalis. It cures to form a tough flexible coating having excellent waterproofing properties. Polyflex is a blend of cement, selected fillers, polymers and graded silica sand which is in the powder form. The liquid contains acrylic co-polymers and wetting agents.

FIELDS OF APPLICATION

Used as a waterproofing and protective coating for the following structures:

- pile heads
- internal lining for potable water reservoirs and other water retaining structures
- protection of exposed concrete structures like bridge decks against carbonation and chloride attack
- inverted roofs, lift and inspection pits, swimming pools, spillways
- backing on marbles and granites to prevent the ingress of moisture
- general construction waterproofing
- wetarea (bathroom, kitchen, balcony, swimming pool and other features.
- moisture vapor barrier on facade damp proofing

APPLICATION INSTRUCTIONS

The application temperature should be between 5°C to 45°C. Application procedures may vary slightly depending upon site conditions. The general recommended guidelines for the application of the coating system is as follows:

Surface preparation

The surface must be structurally sound and free of oil, grease, dust and other contaminants which will affect the bonding. Any structural cracks and potholes shall be repaired with a suitable repair mortar from the Polycrete* range of repair mortars. The surface to be treated should be presaturated with water prior to application. However, any standing water shall be removed prior to application.

Mixing

Polyflex is supplied in two pre-measured parts which just requires on site mixing. Do not mix more material than that can be used within the pot life. Part mixing can be carried out by mixing 3 parts of powder with 1 part of liquid (by weight). Pour the liquid into a suitable container and slowly

add the powder to the liquid. Mix the contents using a slow speed drill (300-400rpm) fitted to a proprietary paddle mixer till a homogenous, lump free and creamy consistency is achieved. DO NOT ADD WATER TO DILUTE THE MATERIAL.

Application

It is recommended to apply Polyflex in two coats to provide a minimum thickness of 2mm. Each coat shall be applied @1.8 kg/m² which will give a dry film thickness of 1mm. The coating can be applied with a stiff brush or by an airless spray of nozzle size of 3-4mm and a pressure of 6-7 bar. After the application of the first coat and whilst the coating is still wet, embed a glass fibre mesh (CL 252 or similar materials) at all corners and other joints for added reinforcement. The second coat shall be applied after the first coat dries off completely (6-8 hours @25°C, 50% rh). For general protection against carbonation and alkali attacks, the coating can be applied in minimum 1mm thickness.

PROTECTION

Adequate protection needs to be provided for the coating in the following conditions:

- areas subjected to mechanical abrasion
- flowing water areas

Curing

The coating shall be cured immediately after it dries by wet hessian cloth or mist spraying for a minimum period of 72 hours. The coating will achieve its full mechanical properties within 7 days at 25°C and 50% rh.

CLEANING

Clean all tools immediately with water after use. Hardened materials can be removed mechanically only.

COVERAGE

1.8kg per m² per coat for 1mm dry film thickness.

STORAGE & SHELF LIFE

Store under cover, out of direct sunlight and protect from extreme temperatures. It is recommended to keep the powder bags on pallets and not stacked on the floor. The shelf life is up to 12 months when stored as per recommendations and in unopened conditions. Failure to comply with the recommendations will result in premature deterioration of the product and reduce its shelf life.

SUPPLY

Polyflex	20kg kit (Part A 15kg bag) (Part B 5L pail, wt 5.0kg#)
Polycrete range	25kg bag
CL 252	100mm x 50m

#Approximate weight

HEALTH & SAFETY

As with all construction chemical products caution should always be exercised. Protective clothing such as gloves and goggles should be worn. Treat any splashes to the skin or eyes with fresh water immediately. Should any of the products be accidentally swallowed, do not induce vomiting, but call for medical assistance immediately.

TECHNICAL SPECIFICATION

PROPERTIES	VALUES	TEST STANDARDS
color	Grey/ off white	-
Mixed density, [g/cc]	1.8±0.02	ASTM D 1475
Pot life, [minutes]	45	-
Tensile strength,# [N/mm²]	> 8	ASTM D 412
Elongation, [%]	> 50	ASTM D 412
Adhesion strength, [N/mm²]	> 0.5	ASTM D 4541
Crack bridging, [mm]	> 0.5	ASTM C 836
Hydrostatic pressure @5 bar, [50m]	No leakage	BS EN 12390 (part 8)
Hydrostatic negative pressure@3 bar, [30m]	No leakage	BS EN 12390 [part 8]
Toxicity	Non toxic	BS 6920 [WRAS]
Reaction to fire	Class A	ASTM E 84
Abrasion resistance,# [mg]	< 75	ASTM D 4060
VOC, [g/l]	< 50	ASTM D 3960/ D 2369
Drying time, [hours]	6-8	-
Full cure, [days]	7	-
Service temp, [°C]	-5 to 70	-

All values given are subject to 5-10% tolerance

#Values achieved with fibre mesh reinforcment

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Nafuflex 2K

Two-component polymer-modified thick bituminous coating for waterproofing building structures

Product Properties

- Complies with DIN 18195
- Solvent-free and eco-friendly
- Powder component allows quick drying
- Highly flexible and crack-bridging up to 2 mm
- Impervious to radon

Areas of Application

- Waterproofing of building structures in accordance with DIN 18195, parts 4,5 and 6
- Adhesive for backing panels, insulation panels and drainage panels

Handling

Substrate Preparation
Nafuflex 2K can be applied to all mineral substrates. Substrate preparation should comply with DIN 18195, part 3. We recommend that covings are formed minerally using Oxal SPM.

Undercoat
For regular absorbent substrates the undercoat can be made from 1 part Nafuflex 2K and 10 parts water. Highly absorptive or powdery substrates should be primed with Nafuflex GIP.

Mixing
Nafuflex 2K is mixed for at least 3 minutes at the delivered mixing-ratio of 3:1 parts by mass into a homogenous and paste-like filling compound, using a slow-moving agitator.

Application
Nafuflex 2K is applied evenly and pore-free, using a trowel. Layer thickness depends on the potential water pressure acting on the building and is determined in accordance with DIN 18195, part 4-6. A reinforcing inlay (Nafuflex-Spezialgewebe 25 NF) has to be inserted if necessary. For application by airless-spraying we recommend Nafuflex 2K-SP.

Curing
Protect Nafuflex 2K from rain until it has developed rain resistance. Water pressure and frost exposure must be prevented until the coating has dried out completely. The dried coating should be covered with a protective coat to protect it permanently from static, dynamic and thermal wearing and only then is it possible to refill the excavation pit. Outdoor weathering over an extended period must be avoided as this might lead to cracking on the surface.

Further Information
Further application information can be found on a separate data sheet.

DIN 18195 and the Regulation for the Planning and Application of Sealings with Polymer-modified Thick Bituminous Coatings (November 2001) must be observed when sealing building structures with polymer-modified thick bituminous coatings. A short summary of all relevant paragraphs is available on a separate information-sheet.

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Technical Data for Nafuflex 2K

Characteristic	Unit	Value	Comments
Density	g/cm³	1.15	
Mixing Ratio	p. b. m.	3 : 1	liquid : powder
Processing time	minutes	90	at 20 °C and 65 % relative air-humidity
Processing conditions	°C	≥ +5	air and substrate temperature
Drying	days	1-2	at 20 °C and 65 % air-humidity, the drying time may be shorter or longer, depending on temperature, humidity, substrate and wet layer-thickness
Coverage	l/m²	4.8 6.6	Wet layer-thickness / Dry layer-thickness 4.2 mm / 3 mm 5.7 mm / 4 mm The coverage may be higher, depending on substrate condition and workmanship

Product Characteristics for Nafuflex 2K

Certification	General construction -supervision inspection- certificate in accordance with the "Inspection policies for the issue of general construction-supervision inspection- certificates for building sealing", Edition: February 2008 (MPA, Dortmund) Imperviousness to radon (Saarland University, Homberg)
Storage	Can be stored for at least 12 months in original unopened packs under dry conditions. Protect from frost!
Form of Delivery	28 kg bucket 1 pallet (12 buckets of 30 kg each)
Disposal	To protect our environment please empty the packs completely. Please refer to our "Disposal concept for emptied transportation and sales packaging".

Property specifications are based on laboratory tests and may vary in practical application. To determine the individual technical suitability, preliminary suitability tests should be carried out under the application conditions.

Edition 10/10. Some technical changes have been made to this print medium. Older editions are invalid and may not be used anymore. If a technically revised new edition is issued, this edition becomes invalid.

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BASF
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MasterSeal® 550

Acrylic reinforced cementitious, flexible waterproof coating

DESCRIPTION

MasterSeal 550 is a two component acrylic modified cementitious coating that requires only on site mixing to form the ideal product to waterproof and resurface concrete, masonry, and most other construction materials.
Simply applied by stiff brush, roller, or trowel, it forms a waterproof, flexible coating.
MasterSeal 550 provides an effective barrier to waterborne salts and atmospheric gases.
Fluid applied, **MasterSeal 550** provides a hard wearing, seamless, waterproof membrane for roofs and foundation protection.

TYPICAL APPLICATIONS

- To reface and even out variations in concrete surfaces.
- As a waterproof lining for water retaining structures.
- For coating seawater channels.
- Sealing and coating tie bar holes to ensure watertightness.
- For waterproofing and protection against brackish water.
- To provide foundation protection.
- As a waterproof coating for roofs.
- As a backing to marble and granite to prevent water ingress and thus alleviate surface staining.
- To provide protection to concrete surfaces from carbonation and chloride attack.
- For use on pedestrian walkways in marine areas.

PACKAGING

MasterSeal 550 is available in 20kg double pack.

MasterSeal 550 is available in three standard colours : Light Grey, White and Dark Grey.

ADVANTAGES

- Waterproof
- Excellent adhesion. Bonds to porous and non-porous surfaces.
- Flexible.
- Non toxic suitable for contact with potable water.
- Suitable for light pedestrian traffic.
- Breathable - whilst repelling water, allows substrate to breathe.
- High resistance to chloride ion diffusion.
- Unlike conventional coatings which require a 7-28 day cure of concrete, **MasterSeal 550** can be applied to 24 hour-old concrete thereby giving immediate protection.

COMPOSITION

MasterSeal 550 is composed of specially selected cements, silica sand and reactive fillers supplied in powder form together with a liquid component of blended acrylic copolymers and wetting agents.

TYPICAL PROPERTIES*

Density:	1826kg/m³
Toxicity:	Non toxic - Suitable for use in contact with potable water
Initial surface absorption:	>95% reduction against control
Chloride ion diffusivity:	Not measurable after 24 months of testing
Moisture vapour transmission (equivalent air layer thickness):	SD ≤ 1.5m (839µm dft)

STANDARDS

WRAS - "Suitable for use in contact with potable water" - BS 6920 : 2000.

MASTER® BUILDERS SOLUTIONS

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MasterSeal® 550

CHLORIDE ION DIFFUSIVITY

MasterSeal 550 provides an effective barrier to waterborne salts such as chlorides and sulphates. *Independent assessment has shown that even after 12 months constant immersion the chloride ion diffusion co-efficient could not be measured for **MasterSeal 550**.

CHEMICAL RESISTANCE

MasterSeal 550 has outstanding wear and weather resistance and good resistance to gasoline, diesel oil, sodium hydroxide, calcium chloride, de-icing salts. **MasterSeal 550** coated surfaces exhibit good resistance to mild acids.

ANTI CARBONATION COATING

MasterSeal 550 is an extremely effective barrier to atmospheric acidic gases which cause carbonation in concrete structures.
MasterSeal 550 at an applied rate of 1.8 kg/m² gives an equivalent air layer thickness for carbon dioxide diffusion (R) of 92 metres. The accepted minimum value for R is 50m. Testing to confirm this was carried out independently by Taywood Engineering 2005. A report is available on request.

APPLICATION PROCEDURE

Surface preparation:
As with all coating systems, surface preparation is of prime importance. Remove all grease, oil, dust, residual curing compound, mould release agent or other contaminant that could impair adhesion. Laitance should preferably be removed by light sweep blasting or hydro-jetting. Mechanical wire brushing may be appropriate for small areas. Spalled concrete should be cut back to sound concrete and made good with a suitable cementitious repair mortar such as **MasterEmaco S 488**. Conventional concrete curing compounds should be removed before application. The exception to this is when **MasterKure 181** has been used. Roofing tiles should be firmly bedded and grouted before application.

MIXING

MasterSeal 550 is supplied in premeasured units and should be mixed on site utilising clean containers. Slowly add the powder to the liquid and mix, using a slow speed drill fitted with a suitable paddle. MIX AND USE. Do not mix more material than can be used in one hour.
NOTE: Although **MasterSeal 550** is supplied in premeasured packs, part packs can be used by mixing 2 volumes of powder to 1 volume of liquid. Mix thoroughly and keep mixed during application. DO NOT RE-TEMPER WITH WATER.

APPLICATION

Do not apply to dry concrete
Saturate concrete surfaces with clean water whilst still visibly damp, but free of standing water, apply, using a short, stiff bristle brush or roller. Trowel application can be undertaken as necessary. For heavy 6-10mm depressions, honeycombs etc. use less gauging liquid and mix to the desired consistency. Where more than one coat is found necessary to achieve the desired thickness, apply the second or subsequent coats after the previous coat has dried.

It is recommended, for general resurfacing, that each coat should be a minimum of 1mm thick. Spray application is recommended for large areas, details of suitable equipment can be provided by BASF's Technical Service Dept.

COVERAGE

1.826 kg / m² at 1 mm thickness.

MASTER® BUILDERS SOLUTIONS

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We create chemistry

MasterSeal® 550

SPECIFICATION CLAUSE

All exposed concrete surfaces are to be coated with **MasterSeal 550**, a two component reactive polymer composite. The material shall be mixed and applied fully in accordance with the manufacturer's instructions. The cured coating shall have the following diffusion properties. Chloride ion diffusion	Not measurable after 24 months of testing
Moisture vapour transmission (equivalent air layer thickness)	SD ≤ 1.5m (800µm dft)

NOTES

Where subsequent tiling works are to be carried out on vertical surfaces, contact the local BASF representative for advice.

SAFETY PRECAUTIONS

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs. Treat splashes to eyes and skin immediately. If accidentally ingested, seek immediate medical attention.

STORAGE

Store out of direct sunlight, clear of the ground on pallets protected from rainfall. Avoid excessive compaction.

Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice consult BASF's Technical Services Department.

NOTE

Field service, where provided, does not constitute supervisory responsibility. For additional information contact your local BASF representative.

BASF reserves the right to have the true cause of any difficulty determined by accepted test methods.

QUALITY AND CARE

All products originating from BASF's Dubai, UAE facility are manufactured under a management system independently certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001, ISO 14001 and OHSAS 18001.

* Properties listed are based on laboratory controlled tests.

BASF_CC-UAE/SI_550_12_94/v3/07_15

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POLYCOAT

Bitumen emulsion paint

TDS_Polycoat_GCC_0514

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POLYCOAT is an emulsified thixotropic bitumen protective coating. The coating dries to form a black flexible protective film. The finished film forms a tough barrier to vapor transmission.

CHARACTERISTICS

- Resists the attack of salts like chlorides and sulphates that are present in the soil
- Easy to apply
- Cold applied
- Adheres to concrete, metal, wood, cork, etc.
- Can be applied in closed or confined spaces
- Water-based
- Non- flammable
- Versatile
- Economical

FIELDS OF APPLICATION

POLYCOAT is used for providing damproofing for below ground concrete structures which are above the water table. This can also be used as the protective coating for built-up roofing systems and other exposed surfaces. The coating is also used as a moisture vapor barrier on block works and concrete surfaces prior to cladding.

APPLICATION INSTRUCTIONS

The application temperature should be between 5°C to 55°C. Application procedures may vary slightly depending upon site conditions. The general recommended guidelines for the application of the bitumen coating is as follows:

Surface preparation

The surface shall be cleaned thoroughly of all contaminants like dust, traces of curing compound, oil and grease. All surface imperfections and protrusions are to be removed and repaired. Structurally unsound and friable concrete must be removed and repaired with a suitable POLYCRETE+ concrete repair mortar.

Priming

Primer is always recommended prior to coating as it not only penetrates into the concrete pores and seals the substrate. It also acts as an adhesion promoter for further coatings. The primer coat can be made in the site by diluting the same bitumen emulsion with 20% water. The primer may be applied by a brush, roller or airless spray. Allow the primer to dry before any further coats are applied. However, if the primer after application is left open for more than 24 hours after it becomes dry, clean the surface of any settled dust and apply a fresh coat of the primer.

Application

Stir the contents of the drum thoroughly prior to application to remove any sediment. The application can be done with a roller, brush or airless spray. Apply the coating at a coverage rate of 1-4 m^2/lt./coat, depending on the dry film thickness required.When applied at 4m^2/lt./coat, the dry film thickness achieved will be 125 microns. Further coats shall be applied only after the previous coat dries off completely. However, the coverage depends on the smoothness and porosity of the substrate and the required thickness of the coating.

Protection

The coating shall be protected from ongoing site activities and during backfilling from getting damaged by a 150 micron polyethylene sheet.

COVERAGE

Moisture vapor barrier coating: 4 m^2/lt/coat will give dry film thickness of 125 microns.

STORAGE & SHELF LIFE

The drums and pails must be stored in a covered area, away from direct sunlight, UV and other sources of heat. The shelf life is up to 12 months when stored as per recommendations. Excessive exposure to sunlight, UV and other sources of heat will result in considerable deterioration of the product and reduce its shelf life.

HEALTH & SAFETY

Protective clothing such as gloves and goggles should be worn when handling the product. Treat any splashes to the skin or eyes with fresh water immediately. Should any of the products be accidental swallowed, do not induce vomiting, but call for medical assistance immediately. Ensure that the container is available for medical attendant to examine any relevant instructions and content details.

SUPPLY

POLYCOAT	15L pail & 200L drum

* Refer to website for TDS

TECHNICAL SPECIFICATION

PROPERTIES	VALUES	TEST STANDARDS
Form	Thick Viscous Liquid	-
Color	Dark Brown	-
Density, [g/cc]	1.02 ±0.02	ASTM D 2939
Solid content, [%]	40±5	ASTM D 2939
Firm set [hrs]	24	ASTM D 2939
Application temp, [°C]	5 to 55	-
Service temp, [°C]	-5 to 75	-

All values given are subject to 5-10% tolerance

Manufactured in G.C.C.

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Polyprime SB

Solvent based bitumen primer

Low viscoused primer to improve the adhesion of bitumen based membranes and coatings.

CHARACTERISTICS

- Improves the adhesion of bitumen based sheet membranes and coatings
- Cold applied, does not require heating
- Binder for dust particles
- Anti corrosive
- Conforms to ASTM D41 - Asphalt primer for roofing, damp proofing and waterproofing

DESCRIPTION

Polyprime SB is a quick drying solvent based low viscosity bitumen primer. It is used as a primer coat on masonry and concrete substrates to improve the adhesion of bitumen based membranes and coatings. Polyprime SB is low in viscosity, which allows it to penetrate into the concrete pores and improve the adhesion between the membrane and the concrete surface. In addition to that, the primer also acts as a binder for the dust particles which gets accumulated on the concrete surface even after cleaning.

FIELDS OF APPLICATION

Polyprime SB is used as a primer and sealer coat prior to the application of bitumen based waterproofing membranes and coatings.

APPLICATION INSTRUCTIONS

The application temperature should be between 5°C to 45°C. Application procedures may vary slightly depending upon site conditions. The general recommended guidelines for the application of the primer is as follows:

Surface preparation

The surface shall be cleaned thoroughly of all contaminants like dust, traces of curing compound, oil and grease. All surface imperfections, nail head protrusions, structurally unsound and friable concrete shall be removed and repaired with a suit-able Polycrete* concrete repair mortar. The surface must be dry before priming with Polyprime SB.

TDS_Polyprime SB_GCC_0519

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Application

Mix the contents of the pail or drum for a few minutes to remove any sediments. apply the primer @4-6 m²/L to a clean smooth and dry surface by brush/roller. Allow the primer to dry prior to the application of the membrane. For highly porous surfaces application of a second coat is recommended.

COVERAGE

The coverage is 4-6 m²/L/coat. However, the coverage will depend on the porosity of the substrate. In order to ascertain the exact coverage, a trial application is carried out at site.

STORAGE & SHELF LIFE

The pails and drums must be stored in a covered, dry and shaded area, away from direct sunlight, UV and other sources of heat and protected from extreme temperatures. The shelf life of the product is up to 12 months if stored as per the recommendations. Excessive exposure to sunlight and UV will result in the deterioration of the quality of the product and reduce its shelf life.

HEALTH & SAFETY

Polyprime SB contains volatile solvent with relatively low flash point. Keep away from naked flames or direct heat.

Avoid inhalation of vapors and ensure there is adequate ventilation in the work place. Gloves, protective masks and goggles should be worn during application. If swallowed seek medical attention immediately.

SUPPLY

Polyprime SB	20L pail & 200L drum
Polycrete	25kg bag

TECHNICAL SPECIFICATION

PROPERTIES	VALUES	TEST STANDARDS
Density, [g/cc]	0.85-0.90	ASTM D 1475
Solid content, [% by wt]	>40	ASTM D 1644

All values given are subject to 5-10% variation

Apart from the information given here it is also important to observe the relevant guidelines and regulations of various organisations and trade associations as well as the respective standards. The aforementioned characteristics are based on practical experience and applied testing. Warranted properties and possible uses which go beyond those warranted in this information sheet require our written confirmation. All data given was obtained at an ambient and material temperature of +23°C and 50 % relative air humidity at laboratory conditions unless specified otherwise. Please note that under other climatic conditions hardening can be accelerated or delayed.
The information contained herein, particularly recommendations for the handling and use of our products, is based on our professional experience. As materials and conditions may vary with each intended application, and thus are beyond our sphere of influence, we strongly recommend that in each case sufficient tests are conducted to check the suitability of our products for their intended use. Legal liability cannot be accepted on the basis of the contents of this data sheet or any verbal advice given, unless there is a case of wilful misconduct or gross negligence on our part. This technical data sheet supersedes all previous editions relevant to this product.

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Quality for Professionals

DERMABIT 4200

Also available as 3200, 5200 - An APP type modified bituminous membrane

GENERAL DESCRIPTION

***DERMABIT* 4200 (3200, 5200)** is a high performance roofing and waterproofing membrane, reinforced with a core of non woven polyester of 200g/m² nominal weight, suitable for a variety of applications among them; roofs, terraces, foundations, basements, pile capping, footing, tanking, car parks, bridge decks and abutments, tank lining, swimming pools, airport aprons, ramp areas and others.

SPECIAL FEATURES

- Positive barrier to water and dampness.
- Excellent resistance to ageing and atmospheric agents.
- Remains flexible at low temperatures.
- Maintains shape stability at high temperatures.
- Accommodates structural movements.
- Withstands thermal shock and can be left exposed if coated with a reflective coat.
- Can be provided with a lap line.
- May be torched directly over old shingles or old bituminous membranes.
- The top surface is covered with either fine sand (SAND) or a thin Polyethylene film (PBS) The bottom surface is covered with a thin easy torched Poly-Ethylene film (a sand bottom is also available on request).
- Resistant to water-borne chemical attack.

COATING MIXTURE OF THE MEMBRANE

The waterproofing capability is provided by the coating mix of the ***DERMABIT*** membrane. The reinforcement made of nominal 200gm/m² non-woven polyester mat is impregnated with this mix and then coated to factory regulated thickness. The mix is made up of bitumen, heavily modified with Amorphous Poly-olefins, thermoplastic resins and stabilizers giving the membrane its excellent resistance to atmospheric agents and ageing, maintaining shape stability at high temperatures, improving adhesion strength and making the membrane easy to apply sawing on time and labor.

PACKING

***DERMABIT* 4200 (3200, 5200)** is manufactured in a standard size of 1x10m, however special length can be done on request. All rolls are sold on pallets and covered with a shrink-wrap.

TOOLS & EQUIPMENT

The application of the ***DERMABIT*** membrane requires very limited tools like propane gas torches and cylinder, a knife for cutting the membranes to size and a trowel with rounded end. Various torch heads are sold separately by **DWI** on request.

METHOD OF APPLICATION

The application of ***DERMABIT* 4200 (3200, 5200)** is both easy and quick.
For applications on concrete, tiles or any other porous surface, coat the substrate with ***DERMAPRIMER*** (solvent based bituminous primer according to **ASTMD41**) at the rate of 4-5m²/litre. Allow this coating to dry thoroughly. In time of high humidity we recommend it should be left overnight.
The ***DERMABIT* 4200 (3200, 5200)** should first be unrolled and positioned correctly. Each roll should overlap the adjacent roll by 10cm. Once the roll has been positioned correctly, the membrane should be rolled up again, taking care not to change its orientation. Using left to right movements, heat the lower surface of the membrane with a propane gas torch. This will cause slight surface melting and the molten bitumen will adhere to the surface.
You then torch on the side overlap to the recommended size of 100mm. Continue the above method for consecutive rolls remembering end-laps must be minimum 200mm.
Inspection of lap joints must be carried out to ensure total adhesion.

DERMABIT 4200

TECHNICAL DATA

DWI products are tested at random intervals by independent laboratories to international standards and the results of these tests are available on request. In addition, each batch manufactured is subject to strict quality control procedures to ensure it meets appropriate and applicable standards and/or norms.

		PROCEDURE	UNITS	TOLERANCE	VALUE
ASTM					
Length			m	<-1%	10
Width			m	<-1%	1
Thickness		ASTM D5147	mm	-0.2mm	4.00
Tensile properties: max. tensile force	- long	ASTM D5147	N/50mm	-20%	960
	- trans	ASTM D5147	N/50mm	-20%	700
Tensile properties: elongation	- long	ASTM D5147	%	-15	45
	- trans	ASTM D5147	%	-15	50
Resistance to tearing	- long	ASTM D5147	N	min	625
	- trans	ASTM D5147	N	min	425
Lap joint strength	- long	ASTM D5147	N/5mm	-20%	960
	- trans	ASTM D5147	N/5mm	-20%	860
Low temperature flexibility*			C	min	0
Dimensional stability at +80C	- long	ASTM D5147	%	mlv	-0.5
	- trans	ASTM D5147	%	mlv	-0.5
Water Absorption		ASTM D5147	%	mlv	<0.15
CE					
Visible defects		EN 1850-1	N°/m²	0	0
Length		EN 1848-1	m	<-1%	10
Width		EN 1848-1	m	<-1%	1
Straightness		EN 1848-1	mm	<20mm	pass
Mass per unit area		EN 1849-1	kg/m²	+/- 10%	4.70
Thickness		EN 1849-1	mm	-0.2mm	4.00
Watertightness to liquid Water		EN 1928-1	mlv	>60kPa	pass
Tensile properties: max. tensile force	- long	EN 12311-1	N/5cm	-20%	960
	- trans	EN 12311-1	N/5cm	-20%	700
Tensile properties: elongation	- long	EN 12311-1	%	-15	45
	- trans	EN 12311-1	%	-15	50
Resistance to tearing (nail shank)	- long	EN 12310-1	N	min	220
	- trans	EN 12310-1	N	min	240
Shear resistance of joint	- long	EN 12317-1	N/5cm	-20%	960
	- trans	EN 12317-1	N/5cm	-20%	860
Resistance to static loading (method A)		EN 12730	kg	min	20
Resistance to impact		EN 12691	mm	mlv	>700
Flexibility at low temperature*		EN 1109	C	min	0
Dimensional Stability	- long	EN1107-1	%	max	-0.5
Flow Resistance less than 2mm		EN1110	C	mlv	100
Reaction to fire		EN 13501-1		Euroclass	F

* Different cold flexibility values can be supplied to special order.

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Distributed by:

DERMABIT 4250

Also available as 3250, 5250 - An APP type modified bituminous membrane

GENERAL DESCRIPTION

***DERMABIT* 4250 (3250, 5250)** is an ultra high performing roofing and waterproofing membrane, reinforced with a core of non woven polyester of 250g/m² nominal weight, suitable for a variety of applications mainly those featuring high dynamic movements in anti-earthquake structural foundations, two layer conventional or exposed roofs, reservoirs, water retaining structures and precast, metal or wooden decks.

SPECIAL FEATURES

- Positive barrier to water and dampness.
- Ultra resistance to ageing and atmospheric agents.
- Remains flexible at low temperatures.
- Maintains shape stability at high temperatures.
- Specially conceived to accommodate structural movements.
- Withstands thermal shock and can be left exposed if coated with a reflective coat.
- Can be provided with a lap line.
- May be torched directly over old shingles or old bituminous membranes.
- The top surface is covered with either fine sand (SAND), a thin Polyethylene film (PBS) or natural slates on cap sheets.
- The bottom surface is covered with a thin easy torched Poly-Ethylene film (a sand bottom is also available on request).
- Resistant to water-borne chemical attack.

COATING MIXTURE OF THE MEMBRANE

The waterproofing capability is provided by the coating mix of the ***DERMABIT*** membrane. The reinforcement made of nominal 250g/m² non-woven polyester mat is impregnated with this mix and then coated to factory regulated thickness. The mix is made up of bitumen, heavily modified with Amorphous Poly-olefins, thermoplastic resins and stabilizers giving the membrane its excellent resistance to atmospheric agents and ageing, maintaining shape stability at high temperatures, improving adhesion strength and making the membrane easy to apply saving on time and labor.

PACKING

***DERMABIT* 4250 (3250, 5250)** is manufactured in a standard size of 1x10m, however special length can be done on request. All rolls are sold on pallets and covered with a shrink-wrap.

TOOLS & EQUIPMENT

The application of the ***DERMABIT*** membrane requires very limited tools like propane gas torches and cylinder, a knife for cutting the membranes to size and a trowel with rounded end. Various torch heads are sold separately by **DWI** on request.

METHOD OF APPLICATION

The application of ***DERMABIT* 4250 (3250, 5250)** is both easy and quick.
For applications on concrete, tiles or any other porous surface, coat the substrate with ***DERMAPRIMER*** (solvent based bituminous primer according to **ASTMD41**) at the rate of 4-5m² /litre. Allow this coating to dry thoroughly. In time of high humidity we recommend it should be left overnight.
The ***DERMABIT* 4250 (3250, 5250)** should first be unrolled and positioned correctly. Each roll should overlap the adjacent roll by 10cm. Once the roll has been positioned correctly, the membrane should be rolled up again, taking care not to change its orientation. Using left to right movements, heat the lower surface of the membrane with a propane gas torch. This will cause slight surface melting and the molten bitumen will adhere to the surface.
You then torch on the side overlap to the recommended size of 100mm. Continue the above method for consecutive rolls remembering end-laps must be minimum 200mm.
Inspection of lap joints must be carried out to ensure total adhesion.

DERMABIT 4250

TECHNICAL DATA

DWI products are tested at random intervals by independent laboratories to international standards and the results of these tests are available on request. In addition, each batch manufactured is subject to strict quality control procedures to ensure it meets appropriate and applicable standards and/or norms.

		PROCEDURE	UNITS	TOLERANCE	VALUE
ASTM					
Length			m	<-1%	10
Width			m	<-1%	1
Thickness		ASTM D5147	mm	-0.2mm	4.00
Tensile properties: max. tensile force	- long	ASTM D5147	N/50mm	-20%	1050
	- trans	ASTM D5147	N/50mm	-20%	750
Tensile properties: elongation	- long	ASTM D5147	%	-15	45
	- trans	ASTM D5147	%	-15	45
Resistance to tearing	- long	ASTM D5147	N	min	775
	- trans	ASTM D5147	N	min	650
Lap joint strength	- long	ASTM D5147	N/5mm	-20%	1050
	- trans	ASTM D5147	N/5mm	-20%	750
Low temperature flexibility*			C	min	0
Dimensional stability at +80C	- long	ASTM D5147	%	mlv	-0.5
	- trans	ASTM D5147	%	mlv	-0.5
Water Absorption		ASTM D5147	%	mlv	<0.15
CE					
Visible defects		EN 1850-1	N°/m²	0	0
Length		EN 1848-1	m	<-1%	10
Width		EN 1848-1	m	<-1%	1
Straightness		EN 1848-1	mm	<20mm	pass
Mass per unit area		EN 1849-1	kg/m²	+/- 10%	4.70
Thickness		EN 1849-1	mm	-0.2mm	4.00
Watertightness to liquid Water		EN 1928-1	mlv	>60kPa	pass
Tensile properties: max. tensile force	- long	EN 12311-1	N/5cm	-20%	1050
	- trans	EN 12311-1	N/5cm	-20%	750
Tensile properties: elongation	- long	EN 12311-1	%	-15	45
	- trans	EN 12311-1	%	-15	45
Resistance to tearing (nail shank)	- long	EN 12310-1	N	min	220
	- trans	EN 12310-1	N	min	240
Shear resistance of joint	- long	EN 12317-1	N/5cm	-20%	1050
	- trans	EN 12317-1	N/5cm	-20%	750
Resistance to static loading (method A)		EN 12730	kg	min	25
Resistance to impact		EN 12691	mm	mlv	>700
Flexibility at low temperature*		EN 1109	C	min	0
Dimensional Stability	- long	EN1107-1	%	max	-0.5
Flow Resistance less than 2mm		EN1110	C	mlv	100
Reaction to fire		EN 13501-1		Euroclass	F

* Different cold flexibility values can be supplied to special order.

DWI, DERMABIT WATERPROOFING INDUSTRIES COMPANY LIMITED

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Distributed by:

Technical Data Sheet

Armoproof

A semi-flexible protection and recovery board

4.0 mm

Tests Performed – As per ASTM	Procedure	Units	Tolerance	Value
Length		m	<-1%	2
Width		m	<-1%	1
Thickness	ASTM D5147	mm	-0.2mm	4.0
Water Absorption (n/a slate)	ASTM D5147	%	mlv	< 0.55
Puncture Resistance	ASTM D5147	N; mm	mlv	1200;32
Tests Performed – As per CE				
Visible Defects	EN 1850-1	No/M2	0	0
Length	EN 1848-1	m	<-1%	2
Width	EN 1848-1	m	<-1%	1
Mass Per Unit Area	EN 1849-1	Kg/m2	+/-10%	5.5
Thickness	EN 1849-1	mm	0.2mm	4.0
Resistance to Static Loading (method A)	EN 12730	kg	min	25
Resistance to Impact	EN 12691	mm	mlv	>700
Reaction to Fire	EN 13501-1		Euroclass	F

5.00 mm

Tests Performed – As per ASTM	Procedure	Units	Tolerance	Value
Length		m	<-1%	2
Width		m	<-1%	1
Thickness	ASTM D5147	mm	-0.2mm	5.0
Water Absorption (n/a slate)	ASTM D5147	%	mlv	< 0.55
Puncture Resistance	ASTM D5147	N; mm	mlv	1200;25
Tests Performed – As per CE				
Visible Defects	EN 1850-1	No/M2	0	0
Length	EN 1848-1	m	<-1%	2
Width	EN 1848-1	m	<-1%	1
Mass Per Unit Area	EN 1849-1	Kg/m2	+/-10%	6.5
Thickness	EN 1849-1	mm	0.2mm	5.0
Resistance to Static Loading (method A)	EN 12730	kg	min	25
Resistance to Impact	EN 12691	mm	mlv	>700
Reaction to Fire	EN 13501-1		Euroclass	F

DWI
DERMABIT®
WATERPROOFING IND.

ARMOPROOF

A semi-flexible protection and recovery board

GENERAL DESCRIPTION

ARMOPROOF is a tough semi-flexible, rot-proof, durable pre-molded bitumen based board suitable for a variety of applications in below or above ground waterproofing as well as roofing, parking, bridge decks, wet areas, planters, pools, fountains and civil works.

SPECIAL FEATURES

- Positive barrier to water and dampness with very low water absorption.
- Non invasive. Compatible with almost every waterproofing membrane and coating like: Bituminous, EPDM, TPO, PVC, Polyurethane, Butyl rubber, Epoxy, Acrylic, Chlorinated Rubber, coal tar and many others.
- Withstands site abuse and impact from backfilling operations as well as effective protection against construction traffic, concreting and other topping work.
- Maintains shape stability at high temperatures and retains flexibility at low temperatures. It is tough, rot proof and non-bio degradable. It is unaffected by permanent Immersion in water.
- Resistant to salts, chlorides and other chemicals normally found in soils.
- Can be used as a recovery board in re-roofing as a fast, light weight alternative to screed and eliminating the need to remove the old roofing regardless of its type.
- It comes in a variety of thickness from 2.5mm to 6.5mm depending on specification and client requirement. The technical data on the reverse side is relevant to 3.0mm and 6.0mm. A special technical data sheet will be provided for any other thickness.
- Semi-flexible can be bent to normal contours without cracking while rigid enough to hold as a board on vertical surfaces.
- The top surface is covered with either fine sand (SAND) or a thin Polyethylene film (PBS) The bottom surface is covered with a thin easy torched Poly-Ethylene film.
- High puncture and impact resistance. Pass the chisel test.

COMPOSITION

ARMOPROOF is manufactured as a semi-flexible, semi-rigid board made of a tough bituminous mix with fillers and modifiers, held under pressure between two laminating fibrous and non-woven carriers, providing the board with a superior puncture resistance and low deflection coefficient.

PACKING

ARMOPROOF is manufactured as 1x2m board, stacked on a double pallet, fitting perfectly along the width of a 20ft container or trailer bed. The number of sheets per pallet varies according to thickness. The boards must be kept away from direct sunlight under a shed, one pallet high.

TOOLS & EQUIPMENT

ARMOPROOF is easily placed by hand. Only a gas torch maybe required whenever fixing by heat is preferred.

METHOD OF APPLICATION

ARMOPROOF should be installed in butt joints continuously over the waterproofing material staggering the joints whenever possible. Cut the ***ARMOPROOF*** with roofer's knife as required to obtain complete coverage and neat overall finish.

On horizontal surfaces, ***ARMOPROOF*** can be placed loose directly on the waterproofing membrane or coating while spot bonding with ***DERMAPLAST*** or neoprene adhesive on the edges to avoid slippage.

On vertical surfaces the ***ARMOPROOF*** can be fixed in two recommended ways:
Cold adhesion by the means of spot bonding with ***DERMAPLAST*** or neoprene adhesive.
Heated application by slightly burning the underside of the board away from the surface and quickly pressing it.
A temporary support might be necessary until the backfilling starts. During backfilling care must be taken to ensure the board is not dragged down.

Technical Data Sheet

Armoproof 3.2mm

A semi-flexible protection and recovery board

3.2 mm

Tests Performed – As per ASTM	Procedure	Units	Tolerance	Value
Length		m	<-1%	2
Width		m	<-1%	1
Thickness	ASTM D5147	mm	-0.2mm	3.2
Water Absorption (n/a slate)	ASTM D5147	%	mlv	< 0.55
Puncture Resistance	ASTM D5147	N/mm	mlv	1200/32
Bitumen Compound by Weight	-	%	-	> 75
Tests Performed – As per CE				
Visible Defects	EN 1850-1	N°/M2	0	0
Length	EN 1848-1	m	<-1%	2
Width	EN 1848-1	m	<-1%	1
Mass Per Unit Area	EN 1849-1	Kg/m2	+/-10%	4.5
Thickness	EN 1849-1	mm	-0.2mm	3.2
Resistance to Static Loading (method A)	EN 12730	kg	min	25
Resistance to Impact	EN 12691	mm	mlv	>700
Reaction to Fire	EN 13501-1		Euroclass	F

Issue : April 2015

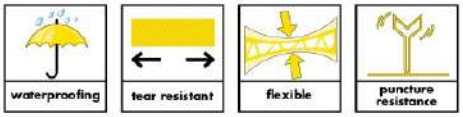
Bituplus E

SBS modified bituminous waterproofing membrane

Bituminous waterproofing membrane, modified with SBS polymers for excellent waterproofing and low temperature flexibility properties.

CHARACTERISTICS

- Excellent resistance to positive water & vapor pressure
- Good dimensional stability under tension
- Excellent flexibility. Can accommodate high structural movements
- High puncture and fatigue resistance
- Excellent tensile and tear strengths
- High resistance against water borne chemicals
- Exhibits good low temperature flexibility with no physical strain



DESCRIPTION

Bituplus E is a bituminous waterproofing membrane manufactured by blending a mixture of bitumen and SBS (Styrene Butadiene Styrene) polymers to obtain excellent waterproofing and low temperature flexibility properties. The polymerized bitumen is coated onto a dimensionally stable reinforcement core of non woven spun bond polyester rot-proof fabric.

FIELDS OF APPLICATION

Bituplus E membrane is typically used for waterproofing / damp proofing of the following areas:

- concrete foundations & footings
- basements
- pile heads
- swimming pools & water retaining structures (externally)
- tunnels
- wet areas (kitchens & bathrooms)

APPLICATION INSTRUCTIONS

The application temperature should be between 5°C to 55°C. Application procedures may vary slightly depending upon site conditions.

Surface preparation

The surface shall be cleaned thoroughly of all contaminants like dust, traces of curing compound, oil and grease. All surface imperfections, protrusions, structurally unsound and friable concrete must be removed and repaired.

TDS_Bituplus E_GCC_0519

1

Priming

Apply Polyprime SB* (Solvent based primer) @4-6 m²/L to a clean, smooth and dry surface by brush, roller or spray. Allow the primer to dry prior to the application of the membrane. The primer promotes the adhesion between the membrane and the concrete surface.

Alignment

Start the installation of all membrane plies from the low point or drains, so that the flow of water is over or parallel to the plies, but never against the laps. All overlaps at the membrane seams shall be installed so as to have "up" slope laps over "down" slope laps. Begin membrane application by unrolling the roll of Bituplus E membrane and aligning the side laps. Side overlaps should be a minimum of 100 mm and the end overlaps 150mm.

Torching

Bituplus E membrane is installed by using a cylinder fed propane gas torch. Use of hand-held roofing torch is recommended as it affords a good control. Begin torching the embossed polyethylene side of the rolled portion of the membrane. As the membrane is heated the embossing starts to melt away exposing a shiny bitumen surface. Roll forward the membrane and press firmly with the boot or roller against the substrate to bond well. The propane

flame should be moved from side to side and up the lap edge while the membrane is slowly unrolled and adhered to the underlying surface. Caution: Do not over torch the membrane as this will expose the reinforcement and cause damage to it.

Sealing

Heat both the overlaps and use round tipped trowel to seal the overlap. Adequate heat is confirmed when a uniform flow of melted bitumen compound flows evenly in a bead that oozes from the applied membrane's edges. Excess compound should be pressed into the seam using a heated trowel. Any un-bonded areas must be lifted and re-torched.

Protection

Bituplus E should be protected from getting damaged due to the ongoing site activities and during backfilling. Membranes laid on horizontal surfaces can be protected either by a cement sand screed (50mm thick) or by an asphaltic protection board (Bituboard)*. On vertical surfaces the membrane has to be protected with Bituboard. Bituboard can be fixed on the membrane by torching the underside of the board, or with a double sided bitumen adhesive tape (Watertite TS 15)*.
Please contact our technical service team for specific requirement.

STANDARDS

Bituplus E membranes are tested and conform to the requirements of ASTM and UEAtc 2001 standards.

STORAGE & SHELF LIFE

Bituplus E membrane rolls whether loose or on pallets have to be stored vertically in a shaded area, neatly covered by a thick fabric and tied securely in a manner that will minimize exposure to sunlight & UV. The membranes shall be protected from all sources of heat and extreme temperatures. The shelf life is 12 months if stored as per recommendations. Excessive exposure to sunlight, UV and other sources of heat will result in considerable deterioration of the product and reduce its shelf life.

HEALTH & SAFETY

Bituplus E contains a tacky bitumen compound which can stick to human skin during application. Such stains can be removed by using a cloth dipped in a suitable cleaner.

SUPPLY

Bituplus E	1m x 10m, wt 41kg#
Polyprime SB	20L pail & 200L drum
Bituboard	3.2mm 2m x 1m, wt 7.7kg# 6.0mm 2m x 1m, wt 14.0kg#
Watertite TS 15	10m x 50mm, wt 0.60kg

 # Approximate weight

TECHNICAL SPECIFICATION

PROPERTIES	VALUES		TEST STANDARDS
Product	4180	4200	
Thickness, [mm]	4.0	4.0	DIN EN 1849-1
Mass per unit area, [kg/m²]	4.0-4.3	4.0-4.3	DIN EN 1849-1
Reinforcement [polyester], [g/m²]	180	200	EN 29073-1
Coating asphalt	Styrene Butadiene Styrene Polymer Modified Asphalt		
Softening point [R&B], [°C]	>110		ASTM D 36
Penetration @25°C, [0.1mm]	20-35		ASTM D 5
Tensile strength [L/T], [N/5cm]	800/600	850/650	DIN EN 12311-1
Elongation at break [L/T], [%]	40/50	40/50	DIN EN 12311-1
Tear resistance [L/T], [N]	160/180 >400/300	180/200 >500/400	DIN EN 12310-1 ASTM D 5147 / D 4073
Resistance to static loading	Static : L_{25}		DIN EN 12730
Hydrostatic pressure @ 5 bar [50m]	No leakage		BS EN 12390 (Part 8)
Water absorption [BSP], [%]	<0.2		ASTM D 5147
Heat resistance @100°C	No flow		DIN EN 52 123
Low temperature flexibility	-3°C to -10°C		ASTM D 5147
Dimensional stability, [%]	<1		ASTM D 6164
VOC [g/L]	<50		ASTM D3960 / D2369

All values given are subject to 5-20% tolerance

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MATERIAL TEST RESULTS

Dubai Central Laboratory

Construction Materials Laboratory Section - Structural Unit

TEST REPORT

ODOR EMISSION OF THE THERMAL INSULATION MATERIALS

Report No:	**100252586**	**Request No:**	**EMTX-2018-056224**
Project No:	PS-1604	**Report Date:**	12/07/2018
Project Name:	TESTING SERVICE FOR BASF KANOO POLYURETHANES LLC		
Consultant:	NA		
Contractor:	BASF KANOO POLYURETHANES LLC		
Location:	BASF Kanoo Polyurethanes LLC, DIC		
Source:	BASF KANOO POLYURETHANES L.L.C. - DUBAI		
Sample Description:	SPRAY APPLIED RIGID CELLULAR POLYURETHANE INSUL.		
Sampling Date/Time:	28/06/2018 08:30 AM	**Lot Number:**	NA
Receiving Date/Time:	28/06/2018 08:41 AM	**Lot Size:**	- NA
Sample Size:	12 pieces	**Sender No:**	NA
Material/Mix type:		**Laying Date/Production Date:**	14/06/2018
Nominal Size / Working Block Size L * T * H (mm) :	1000 X 500 X 50		

TEST RESULTS

PARAMETERS	RESULTS
SAMPLE TYPE	ELASTOSPRAY 1611/16
SUPPORT / FACING	NIL
NOM. THICKNESS (mm)	50
NOM. DENSITY (kg/m3)	40
WAS A PERCEPTIBLE ODOR PRESENT?	NO
WAS THE ODOR OBJECTIONABLE, PLESANT, OTHERWISE?	NA
THE ODOR WAS WEAK OR STRONG?	NA
THE SPECIMEN IS	PASSED

Sampled By:	Ahmed Wanas	**Tested By:**	NIMIAH
Samples Brought By:	Manson Jacob	**Testing Date:**	01/07/2018 09:21 AM
Sampling Method:	NOT GIVEN	**Sampling Report No:**	
Test Method:	ASTM C 1304-08(R 13)	**Test Method Variation:**	NIL
Remarks:	THIS REPORT REPRESENTS THE SUBMITTED SAMPLES ONLY.		

To verify this document please go to **http://login.dm.gov.ae/wps/portal/documentverification** and Enter Document ID: **EMTX-2018-056224** and Verification Code: **298-721** or scan the QR code below.

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It does not require any signature

LB-014

P.O. BOX: 67 DUBAI, TEL : 00971-4-3369900, FAX : 00971-4-3366399
E-mail: labs@dm.gov.ae Website: http://www.dm.gov.ae

Dubai Central Laboratory

Construction Materials Laboratory Section - Structural Unit

TEST REPORT
APPARENT DENSITY

Report No:	**100252587**	**Request No:**	**EMTX-2018-056224**
Project No:	PS-1604	**Report Date:**	12/07/2018
Project Name:	TESTING SERVICE FOR BASF KANOO POLYURETHANES LLC		
Consultant:	NA		
Contractor:	BASF KANOO POLYURETHANES LLC		
Location:	BASF Kanoo Polyurethanes LLC, DIC		
Source:	BASF KANOO POLYURETHANES L.L.C. - DUBAI		
Sample Description:	SPRAY APPLIED RIGID CELLULAR POLYURETHANE INSUL.		
Sampling Date/Time:	28/06/2018 08:30 AM	**Lot Number:**	NA
Receiving Date/Time:	28/06/2018 08:41 AM	**Lot Size:**	- NA
Sample Size:	12 pieces	**Sender No:**	NA
Material/Mix type:		**Laying Date/Production Date:**	14/06/2018
Nominal Size / Working Block Size L * T * H (mm) :	1000 X 500 X 50		

TEST RESULTS

PARAMETERS	RESULTS				
SAMPLE TYPE	ELASTOSPRAY 1611/16				
SUPPORT / FACING	NIL				
NOM. THICKNESS (mm) :	50				
NOM. DENSITY (kg/m3) :	40				
SPECIFICATION LIMIT (kg/m3)	NG				
SPECIMEN NOM. LENGTH (mm)	1000				
SPECIMEN NOM. WIDTH (mm)	500				
SPECIMEN NOM. THICKNESS (mm)	50				
PRE-COND. TEMP, RH & DURATION	23 deg C, 50% RH & 24 Hr.				
TEST TEMPERATURE & RH	23 deg C, 50% RH				
SPECIMEN NO	1	2	3	4	5
APPARENT DENSITY (kg/Cubic m)	44.0	44.5	45.5	43.0	43.5
AVG. APPARENT DENSITY (kg/Cubic m)	44.1				

Sampled By:	Ahmed Wanas	**Tested By:**	NASARDAR
Samples Brought By:	Manson Jacob	**Testing Date:**	01/07/2018 09:21 AM
Sampling Method:	NOT GIVEN	**Sampling Report No:**	
Test Method:	BS EN 1602: 2013	**Test Method Variation:**	NIL
Remarks:	THIS REPORT REPRESENTS THE SUBMITTED SAMPLES ONLY.		

This Report is computer approved and authorized by Structural Unit
It does not require any signature

LB-014

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Dubai Central Laboratory

Construction Materials Laboratory Section - Structural Unit

TEST REPORT

WATER ABSORPTION (2H) THERMAL INSULTATION

Report No:	**100252588**	**Request No:**	**EMTX-2018-056224**
Project No:	PS-1604	**Report Date:**	12/07/2018
Project Name:	TESTING SERVICE FOR BASF KANOO POLYURETHANES LLC		
Consultant:	NA		
Contractor:	BASF KANOO POLYURETHANES LLC		
Location:	BASF Kanoo Polyurethanes LLC, DIC		
Source:	BASF KANOO POLYURETHANES L.L.C. - DUBAI		
Sample Description:	SPRAY APPLIED RIGID CELLULAR POLYURETHANE INSUL.		
Sampling Date/Time:	28/06/2018 08:30 AM	**Lot Number:**	NA
Receiving Date/Time:	28/06/2018 08:41 AM	**Lot Size:**	- NA
Sample Size:	12 pieces	**Sender No:**	NA
Material/Mix type:		**Laying Date/Production Date:**	14/06/2018
Nominal Size / Working Block Size L * T * H (mm) :	1000 X 500 X 50		

TEST RESULTS

PARAMETERS	RESULTS		
SAMPLE TYPE	ELASTOSPRAY 1611/16		
SUPPORT / FACING	NIL		
NOM. THICKNESS (mm) :	50		
NOM. DENSITY (kg/m3) :	40		
NOM. THICKNESS (mm)	50		
SPECIMEN NOM. DENSITY (kg/m3)	40		
TEMPERATURE, RH & DURATION AT WHICH SPECIMEN CONDITIONED	23+/-2deg C, 50+/-5% RH, 24h		
DURATION OF TEST (H)	2		
SPECIMEN	1	2	3
WATER ABSORPTION BY WEIGHT (%)	2.51	2.39	2.26
WATER ABSORPTION BY VOLUME (%)	0.10	0.09	0.09
AVERAGE WATER ABSORPTION BY VOL. (%)	0.09		

Sampled By:	Ahmed Wanas	**Tested By:**	NASARDAR
Samples Brought By:	Manson Jacob	**Testing Date:**	01/07/2018 09:21 AM
Sampling Method:	NOT GIVEN	**Sampling Report No:**	
Test Method:	ASTM C209-20 15	**Test Method Variation:**	NIL
Remarks:	THIS REPORT REPRESENTS THE SUBMITTED SAMPLES ONLY.		

This Report is computer approved and authorized by Structural Unit
It does not require any signature

LB-014

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E-mail: labs@dm.gov.ae Website: http://www.dm.gov.ae

Dubai Central Laboratory

Construction Materials Laboratory Section - Structural Unit

TEST REPORT

THERMAL TRANSMISSION PROPERTIES BY HEAT FLOW METER (THERMAL COND)

Report No:	**100252589**	**Request No:**	**EMTX-2018-056224**
Project No:	PS-1604	**Report Date:**	12/07/2018
Project Name:	TESTING SERVICE FOR BASF KANOO POLYURETHANES LLC		
Consultant:	NA		
Contractor:	BASF KANOO POLYURETHANES LLC		
Location:	BASF Kanoo Polyurethanes LLC, DIC		
Source:	BASF KANOO POLYURETHANES L.L.C. - DUBAI		
Sample Description:	SPRAY APPLIED RIGID CELLULAR POLYURETHANE INSUL.		
Sampling Date/Time:	28/06/2018 08:30 AM	**Lot Number:**	NA
Receiving Date/Time:	28/06/2018 08:41 AM	**Lot Size:**	- NA
Sample Size:	12 pieces	**Sender No:**	NA
Material/Mix type:		**Laying Date/Production Date:**	14/06/2018
Nominal Size / Working Block Size L * T * H (mm) :	1000 X 500 X 50		

TEST RESULTS

PARAMETERS	RESULTS
SAMPLE TYPE	ELASTOSPRAY 1611/16
SUPPORT / FACING	NIL
NOM. THICKNESS (mm) :	50
NOM. DENSITY (kg/m3) :	40
SPECIFICATION LIMIT	NG
TEST METHOD VARIATION	NIL
TYPE OF MATERIAL USED FOR CALIBRATION	STANDARD REFERANCE MATERIAL 1450C687
R VALUE @ 35deg C [(M2 K) / W]	0.7169
DATE OF CERTIFICATION	10-DEC-2010 00:00:00
SOURCE OF CERTIFICATION	National Institute of Standards & Technology [NIST] - U.S.A.
EXPIRY & CERTIFICATION TEST NUMBER	Refer NIST special publication 260-130
NOMINAL THICKNESS OF SPECIMEN (mm)	50.0
TEMPERATURE, RH & TIME AT WHICH SPECIMEN CONDITIONED	35 deg C, 60%RH & 48Hr.
DATE OF CALIBRATION	08-JUL-2018 08:00:00
MEAN TEMP.(SET) deg C	35
TEMPERATURE DIFFERENCE (deltaT) deg C	20
NO. OF HEAT FLUX TRANSDUCER USED	2
TEST ARRANGEMENT	HORIZONTAL
METERING (TEST) AREA	100mm X 100mm
Uncertainty of measurement	REFER REMARKS
TEST NO / SPECIMEN NO.	1/1

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Dubai Central Laboratory

Construction Materials Laboratory Section - Structural Unit

TEST REPORT

THERMAL TRANSMISSION PROPERTIES BY HEAT FLOW METER (THERMAL COND)

Report No:	100252589	Request No:	EMTX-2018-056224

PARAMETERS	RESULTS
MEASURED THICKNESS (L) (mm)	49.50
MEASURED DENSITY (kg/m3)	38.90
MEAN TEMPERATURE ACHIEVED (deg C)	34.92
HEAT FLUX (E) W/m2.K.	1506
THERMAL CONDUCTIVITY, W/(m K)	0.0240
THERMAL CONDUCTIVITY, Btu-in /h.square ft.degF	0.1664
THERMAL RESISTANCE, (Square m K) / W	2.0625
THERMAL RESISTANCE, ft square / Btu	11.7135
AVERAGE TEMPERATURE GRADIENT (K/m)	402.90
WEIGHT DIFFERENCE (%)	-0.0710
TEST DURATION (h:mm:ss)	02:41:45

Sampled By:	Ahmed Wanas	Tested By:	NASARDAR
Samples Brought By:	Manson Jacob	Testing Date:	01/07/2018 09:21 AM
Sampling Method:	NOT GIVEN	Sampling Report No:	
Test Method:	ASTM C518 : 2015	Test Method Variation:	NIL
Remarks:	THIS REPORT REPRESENTS THE SUBMITTED SAMPLES ONLY. , Uncertainty of measurement for thermal conductivity 0.0010 W/mÂ·K @ 95% confidence level, k factor 2 Abridged ASTM C 518 Test Report.		

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TEST REPORT

TENSILE STRENGTH PARALLEL TO FACES OF THERMAL INSULATION

Report No:	**100252590**	**Request No:**	**EMTX-2018-056224**
Project No:	PS-1604	**Report Date:**	12/07/2018
Project Name:	TESTING SERVICE FOR BASF KANOO POLYURETHANES LLC		
Consultant:	NA		
Contractor:	BASF KANOO POLYURETHANES LLC		
Location:	BASF Kanoo Polyurethanes LLC, DIC		
Source:	BASF KANOO POLYURETHANES L.L.C. - DUBAI		
Sample Description:	SPRAY APPLIED RIGID CELLULAR POLYURETHANE INSUL.		
Sampling Date/Time:	28/06/2018 08:30 AM	**Lot Number:**	NA
Receiving Date/Time:	28/06/2018 08:41 AM	**Lot Size:**	- NA
Sample Size:	12 pieces	**Sender No:**	NA
Material/Mix type:		**Laying Date/Production Date:**	14/06/2018
Nominal Size / Working Block Size L * T * H (mm) :	1000 X 500 X 50		

TEST RESULTS

PARAMETERS	RESULTS		
SAMPLE TYPE	ELASTOSPRAY 1611/16		
SUPPORT / FACING	NIL		
NOM. THICKNESS (mm) :	50		
NOM. DENSITY (kg/m3) :	40		
SPECIFICATION LIMIT	NG		
NOM. LENGTH (mm)	1000		
NOM. WIDTH (mm)	500		
PACKING FORM AT WHICH PRODUCT ARRIVED IN LAB	WRAPED IN PLASTIC SHEET		
EVENT WHICH MAY AFFECT RESULT	NIL		
PRE-CONDITION	23+/-2deg C, 50+/-5% RH		
TEST CONDITION	23+/-2deg C, 50+/-5% RH		
SPECIMEN NO.	1	2	3
MAX. TENSILE FORCE FM (kN)	3.90	4.16	4.05
TENSILE STRENGTH PARALLEL TO FACES (kPa)	265.3	279.7	268.2
AVERAGE TENSILE STRENGTH PARALLEL TO FACES (kPa)	271.1		

Sampled By:	Ahmed Wanas	**Tested By:**	NIMIAH
Samples Brought By:	Manson Jacob	**Testing Date:**	01/07/2018 09:21 AM
Sampling Method:	NOT GIVEN	**Sampling Report No:**	
Test Method:	BS EN - 1608 : 2013	**Test Method Variation:**	NIL
Remarks:	THIS REPORT REPRESTNTS THE SUBMITTED SAMPLES ONLY.		

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Construction Materials Laboratory Section - Structural Unit

TEST REPORT

COMPRESSIVE STRENGTH/COMPRESSIVE STRESS AT 10% DEFORMATION

Report No:	**100252593**	**Request No:**	**EMTX-2018-056224**
Project No:	PS-1604	**Report Date:**	12/07/2018
Project Name:	TESTING SERVICE FOR BASF KANOO POLYURETHANES LLC		
Consultant:	NA		
Contractor:	BASF KANOO POLYURETHANES LLC		
Location:	BASF Kanoo Polyurethanes LLC, DIC		
Source:	BASF KANOO POLYURETHANES L.L.C. - DUBAI		
Sample Description:	SPRAY APPLIED RIGID CELLULAR POLYURETHANE INSUL.		
Sampling Date/Time:	28/06/2018 08:30 AM	**Lot Number:**	NA
Receiving Date/Time:	28/06/2018 08:41 AM	**Lot Size:**	- NA
Sample Size:	12 pieces	**Sender No:**	NA
Material/Mix type:		**Laying Date/Production Date:**	14/06/2018
Nominal Size / Working Block Size L * T * H (mm) :	1000 X 500 X 50		

TEST RESULTS

PARAMETERS	RESULTS				
SAMPLE TYPE	ELASTOSPRAY 1611/16				
SUPPORT / FACING	NIL				
NOM. THICKNESS (mm) :	50				
NOM. DENSITY (kg/m3) :	40				
SPECIFICATION LIMIT	NG				
SPECIMEN NOM. LENGTH (mm)	150				
SPECIMEN NOM. WIDTH (mm)	150				
PRE-COND. TEMP, RH & DURATION	23+/-2deg C, 50+/-5% RH & 48 Hr.				
TEST CONDITION	23+/-2deg C, 50+/-5% RH				
SPECIMEN NO.	1	2	3	4	5
MEASURED DENSITY (kg/Cubic m)	38.4	38.2	37.5	39.3	39.5
INITIAL CROSS SECTIONAL AREA (mm2)	22499.75	23104.00	22952.00	22499.00	22500.00
RELATIVE DEFORMATION (%)	10	7.71	7.39	10	10
COMPRESSIVE STRENGTH (kPa)	206.0	224.5	212.0	227.8	218.6
AVERAGE COMPRESSIVE STRENGTH (kPa)	217.8				

Sampled By:	Ahmed Wanas	**Tested By:**	NIMIAH
Samples Brought By:	Manson Jacob	**Testing Date:**	01/07/2018 09:21 AM
Sampling Method:	NOT GIVEN	**Sampling Report No:**	
Test Method:	BS EN 826 : 1996	**Test Method Variation:**	NIL
Remarks:	THIS REPORT REPRESENTS THE SUBMITTED SAMPLES ONLY.		

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Construction Materials Laboratory Section - Structural Unit

TEST REPORT

DIMENSIONAL STABILITY UNDER SPECIFIED TEMPERATURE & HUMIDITY

Report No:	**100266067**	**Request No:**	**EMTX-2018-056224**
Project No:	PS-1604	**Report Date:**	09/08/2018
Project Name:	TESTING SERVICE FOR BASF KANOO POLYURETHANES LLC		
Consultant:	NA		
Contractor:	BASF KANOO POLYURETHANES LLC		
Location:	BASF Kanoo Polyurethanes LLC, DIC		
Source:	BASF KANOO POLYURETHANES L.L.C. - DUBAI		
Sample Description:	SPRAY APPLIED RIGID CELLULAR POLYURETHANE INSUL.		
Sampling Date/Time:	28/06/2018 08:30 AM	**Lot Number:**	NA
Receiving Date/Time:	28/06/2018 08:41 AM	**Lot Size:**	- NA
Sample Size:	12 pieces	**Sender No:**	NA
Material/Mix type:		**Laying Date/Production Date:**	14/06/2018
Nominal Size / Working Block Size L * T * H (mm) :	1000 X 500 X 50		

TEST RESULTS

PARAMETERS	RESULTS		
SAMPLE TYPE	ELASTOSPRAY 1611/16		
SUPPORT / FACING	NIL		
NOM. THICKNESS (mm) :	50		
NOM. DENSITY (kg/m3) :	40		
SPECIMEN NOMINAL LENGTH (mm)	200		
SPECIMEN NOMINAL WIDTH (mm)	200		
SPECIMEN NOMINAL THICKNESS (mm)	50		
PRE-COND. TEMP, RH & DURATION	23+/-2°C, 50+/-5% RH, 28 DAYS		
TEST TEMPERATURE (deg C)	70		
TEST RH (%)	90		
TEST DURATION (h)	48		
SPECIMEN NO.	1	2	3
CHANGE IN DIMENSION-LENGTH (%)	3.0	3.3	1.6
CHANGE IN DIMENSION-WIDTH (%)	2.8	3.4	1.4
CHANGE IN DIMENSION-THICKNESS (%)	0.2	0.2	0.4
MEAN DIMENSIONAL CHANGE IN % - LENGTH	2.6		
MEAN DIMENSIONAL CHANGE IN % - WIDTH	2.5		
MEAN DIMENSION CHANGE IN % - THICKNESS	0.3		

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Construction Materials Laboratory Section - Structural Unit

TEST REPORT

DIMENSIONAL STABILITY UNDER SPECIFIED TEMPERATURE & HUMIDITY

Report No:	**100266067**	**Request No:**	**EMTX-2018-056224**
Sampled By:	Ahmed Wanas	**Tested By:**	NASARDAR
Samples Brought By:	Manson Jacob	**Testing Date:**	01/07/2018 09:21 AM
Sampling Method:	NOT GIVEN	**Sampling Report No:**	
Test Method:	BS EN 1604: 2013	**Test Method Variation:**	NIL
Remarks:	THIS REPORT REPRESENTS THE SUBMITTED SAMPLES ONLY.		

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TEST REPORT

WATER VAPOR TRANSMISSION OF INSULATION MATERIALS

Report No:	**100266092**	**Request No:**	**EMTX-2018-056224**
Project No:	PS-1604	**Report Date:**	09/08/2018
Project Name:	TESTING SERVICE FOR BASF KANOO POLYURETHANES LLC		
Consultant:	NA		
Contractor:	BASF KANOO POLYURETHANES LLC		
Location:	BASF Kanoo Polyurethanes LLC, DIC		
Source:	BASF KANOO POLYURETHANES L.L.C. - DUBAI		
Sample Description:	SPRAY APPLIED RIGID CELLULAR POLYURETHANE INSUL.		
Sampling Date/Time:	28/06/2018 08:30 AM	**Lot Number:**	NA
Receiving Date/Time:	28/06/2018 08:41 AM	**Lot Size:**	- NA
Sample Size:	12 pieces	**Sender No:**	NA
Material/Mix type:		**Laying Date/Production Date:**	14/06/2018
Nominal Size / Working Block Size L * T * H (mm) :	1000 X 500 X 50		

TEST RESULTS

PARAMETERS	RESULTS		
SAMPLE TYPE	ELASTOSPRAY 1611/16		
SUPPORT / FACING	NIL		
NOM. THICKNESS (mm) :	50		
NOM. DENSITY (kg/cubic m) :	40		
SPECIMEN NOM. THICKNESS (mm)	50		
TEST METHOD USED	DESICCANT METHOD		
TEST ROOM TEMP. & RH	23+/-1Degree, 50+/-2% RH		
COMPOSITION OF SEALANT USED	PURIFIED PARAFFIN WAX		
TEST ASSEMBLY PREPARED ON	22-JUL-2018 09:00:00		
TEST DURATION (h)	264		
SPECIMEN NO.	1	2	3
SPECIMEN MEASURED THICKNESS (mm)	49.3	49.4	49.0
SPECIMEN MEASURED DENSITY (kg/cubic m)	37.6	37.4	38.7
WATER VAPOR TRANSMISSION (g/h m2) - *METRIC UNIT	0.361	0.393	0.361
PERMEANCE (g/Pa. s. m2) - *METRIC UNIT	7.15E-08	7.79E-08	7.15E-08
WATER VAPOR TRANSMISSION (grains/h. ft2) - *INCH-POUND UNIT	0.518	0.564	0.518
PERMEANCE (perms) - *INCH-POUND UNIT	1.250	1.361	1.250
AVG. WATER VAPOR TRANSMISSION (grains/h. ft2) - *INCH-POUND UNIT	0.53		
AVG. PERMEANCE (perms) - *INCH-POUND UNIT	1.29		

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TEST REPORT

WATER VAPOR TRANSMISSION OF INSULATION MATERIALS

Report No:	**100266092**	**Request No:**	**EMTX-2018-056224**
Sampled By:	Ahmed Wanas	**Tested By:**	NIMIAH
Samples Brought By:	Manson Jacob	**Testing Date:**	01/07/2018 09:21 AM
Sampling Method:	NOT GIVEN	**Sampling Report No:**	
Test Method:	ASTM E96/96M -2016	**Test Method Variation:**	NIL
Remarks:	THIS REPORT REPRESENTS THE SUBMITTED SAMPLES ONLY.		

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Construction Materials Laboratory Section - Structural Unit

TEST REPORT

THERMAL TRANSMISSION PROPERTIES BY HEAT FLOW METER (THERMAL COND)

Report No:	**100528629**	**Request No:**	**EMTX-2019-124614**
Project No:	PS19-1150	**Report Date:**	07/01/2020
Project Name:	TESTING SERVICE FOR PEARL COVESTRO POLYURETHANE SYSTEMS LLC		
Consultant:	NA		
Contractor:	PEARL COVESTRO POLYURETHANE SYSTEMS LLC		
Location:	Technical Centre , Pearl Covestro Polyurethane System LLC dubai		
Source:	PEARLCOVESTRO POLYURETHANE SYSTEMS LLC-DUBAI		
Sample Description:	SPRAY APPLIED RIGID CELLULAR POLYURETHANE INSUL.		
Sampling Date/Time:	17/11/2019 10:00 AM	**Lot Number:**	NA
Receiving Date/Time:	24/12/2019 09:59 AM	**Lot Size:**	NA NA
Sample Size:	3 pieces	**Sender No:**	NG
Material/Mix type:		**Laying Date/Production Date:**	
Nominal Size / Working Block Size L * T * H (mm) :	300 X 300 X 40		

TEST RESULTS

PARAMETERS	RESULTS
SAMPLE TYPE	BAYMER SHPU-40-27A/SYSTEM ISO 44V
SUPPORT / FACING	NIL
NOM. THICKNESS (mm) :	40
NOM. DENSITY (kg/m3) :	NG
SPECIFICATION LIMIT	NG
TEST METHOD VARIATION	NIL
TYPE OF MATERIAL USED FOR CALIBRATION	STANDARD REFERANCE MATERIAL 1450C687
R VALUE @ 35deg C [(M2 K) / W]	0.7169
DATE OF CERTIFICATION	10-DEC-2010 00:00:00
SOURCE OF CERTIFICATION	National Institute of Standards & Technology [NIST] - U.S.A.
EXPIRY & CERTIFICATION TEST NUMBER	Refer NIST special publication 260-130
NOMINAL THICKNESS OF SPECIMEN (mm)	40.0
TEMPERATURE, RH & TIME AT WHICH SPECIMEN CONDITIONED	35 deg C, 60%RH & 48Hr.
DATE OF CALIBRATION	05-JAN-2020 00:00:00
MEAN TEMP.(SET) deg C	35
TEMPERATURE DIFFERENCE (deltaT) deg C	20
NO. OF HEAT FLUX TRANSDUCER USED	2
TEST ARRANGEMENT	HORIZONTAL
METERING (TEST) AREA	100mm X 100mm
Uncertainty of measurement	REFER REMARKS
TEST NO / SPECIMEN NO.	1/1

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TEST REPORT

THERMAL TRANSMISSION PROPERTIES BY HEAT FLOW METER (THERMAL COND)

Report No:	100528629	Request No:	EMTX-2019-124614

PARAMETERS	RESULTS
MEASURED THICKNESS (L) (mm)	41.5
MEASURED DENSITY (kg/m3)	40.02
MEAN TEMPERATURE ACHIEVED (deg C)	35.22
HEAT FLUX (E) W/m2.K.	1716
THERMAL CONDUCTIVITY, W/(m K)	0.0221
THERMAL CONDUCTIVITY, Btu-in /h.square ft.degF	0.1532
THERMAL RESISTANCE, (Square m K) / W	1.8778
THERMAL RESISTANCE, ft square / Btu	10.6645
AVERAGE TEMPERATURE GRADIENT (K/m)	488.95
WEIGHT DIFFERENCE (%)	-0.0600
TEST DURATION (h:mm:ss)	01:46:08

Sampled By:	Melwyn Thomas	**Tested By:**	SSRAJU
Samples Brought By:	Mohamed Merzook	**Testing Date:**	25/12/2019 11:17 AM
Sampling Method:	NOT GIVEN	**Sampling Report No:**	
Test Method:	ASTM C518 -17	**Test Method Variation:**	NIL
Remarks:	THIS REPORT REPRESENTS THE SUBMITTED SAMPLES ONLY. ,Uncertainty of measurement for thermal conductivity 0.0010 W/mÂ·K @ 95% confidence level, k factor 2 Abridged ASTM C 518 Test Report.		

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Share / الحصص	Sr. No./مسلسل الشخص	Nationality / الجنسية	Name / الإسم
74.0000000%	868391	India / الهند	Mohamed Azad Meleveetil / محمد ازاد ميليفيتيل
25.0000000%	912991	India / الهند	Neethu Parayil Viswanathan Parayil / نيتو بارايل فيسوانثان بارايل
1.0000000%	394059	United Arab Emirates / الامارات	Easa Abdulla Easa Bin Jaber Alali / عيسى عبدالله عيسى بن جابر العلي

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حكومة دبي
GOVERNMENT OF DUBAI

اقتصادية دبي
DUBAI ECONOMY

شهادة شهر قيد شركة فى السجل التجارى
Commercial Register

Register Details / تفاصيل القيد

Main Lice. Nr	642974	رقم الرخصة الأم	Register No.	1063356	رقم القيد
Company Name	DAM SURE TECHNICAL SERVICES L.L.C			دام شور لخدمات الفنية ش.ذ.م.م	
Legal Type	Limited Liability Company(LLC)			ذات مسئولية محدودة	الشكل القانونى
Expiry Date	28/07/2022	تاريخ الإنتهاء	Reg. Date	29/07/2010	تاريخ الإصدار
D&B D-U-N-S ® No.			0		الرقم العالمي

Capital Details / تفاصيل راس المال

Nominated	400,000		الإسمى
Paid	400,000		المدفوع
No. of Shares	400		عدد الأسهم
Currency	UAE Dirhams	درهم اماراتي	العملة

License Address / عنوان الرخصة

مكتب رقم 204 - ملك عبدالرحمن علي نقي جعفر محمود الزرعوني - القصيص الرابعة / ديرة

Commerce Address / عنوان السجل التجاري

مكتب رقم 204 - ملك عبدالرحمن علي نقي جعفر محمود الزرعوني - القصيص الرابعة / ديرة

Register Activities / أنشطة السجل

Technical Services Contracting — مقاولات الخدمات الفنية

Print Date 14/09/2021 16:14 تاريخ الطباعة — Receipt No. 14054441 رقم الإيصال

يمكنك الآن تجديد رخصتك التجارية من خلال الرسائل النصية القصيرة، أرسل رقم الرخصة إلى 6969 (دو/اتصالات) للحصول على اذن الدفع.
Now you can renew your trade license by sending a text message (SMS). Send your trade license number to 6969 (Du/ Etisalat) to receive payment voucher.

الإمارات THE EMIRATES

وثيقة إلكترونية معتمدة وصادرة بدون توقيع من دائرة التنمية الاقتصادية .لمراجعة صحة البيانات الواردة في الرخصة برجاء زيارة الموقع www.dubaided.gov.ae
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PROJECTS LIST

PROJECT LIST

SOME OF OUR EXECUTED PROJECTS

SL NO	MAIN CONTRACTOR	PROJECT	LOCATION	CONSULTANT
01	Abr Al Qarath Building Contg	Rahma – The Charity	Al Daith –RAK	Union Engineering Consultants
02	Cosmo Decors LLC	Cosmo Surge Clinic	Julpar tower-RAK	Designer Engineering Consultants
03	Al Thiqa Building Contg	St. & Kb	Aljeer-374	Al Qalaa Engineering Consultants
04	Saif Humaidan Building Contg	Villa G+ 1	Al Fahlain	Al Qalaa Engineering Consultants
05	Private	Villa Single Story	Al Fahlain	Private
06	Al Skoon Building Contg	Villa G+1	Al Rams	Designer Engineering Consultants
07	Al Jodh Building Contg	Villa G+1	Al Daith block 14	Al Zein Design & Engineering Consultants
08	Al Jodh Building Contg	Service Block	Al Daith Block 13	Al Zein Design & Engineering Consultants
09	Burj Al Arab Building contg	Villa G+1	Al Rams	Al Wadi Engineering Consultants
10	Al Heera Building Contg	Villa Single Story	Al Fahlain	Andalusion Architecture Engneering
11	Al Skoon Building	Villa G+1	Al Daith Block 3	Al Zein Eng. Cons
12	Nice Building Contg	Masjid	Shamal	International Engineering Consultants
13	Al Sakher Building Contg	Villa G+1 & Kitchen Block	Al Rams	Al Wadi Engineering Consultants
14	Al Sayl Building Contg	Al Futtaim Car Show room	Rak	Union Engineering Consultants
15	Al Sayl Building Contg	Villa G+1	Al Daith Block 11	AL Zein Design & Engineering Consultants
16	Old Tradition Building Contg	Masjid main block	Julan-Munthasir masjid	Maskan Engineering Consultants
	Al Nahda Building Contg	Double storey villa	New Riffa	Al Qalaa Engineering Consultants

18	Private work	Service Block	Shamal	Al Khathri Engineering Consultants
19	Al Mahara Building Contg	Kichen Block	Suhaila	Al Turath Engineering Consultants
20	Al Nahda Building Contg	Kichen Block	Madfaq	Al Qalaa Engineering Consultants
21	Al Batra Building Contg	Double storey villa	Al Dhaith	Al Mamar Engineering Consultants
22	Al Burj Building Contg	Single storey villa	Riffa	Al Wadi Engineering Consultants
23	Private work	Game Coart(Rak Hotel)	Kuzham	Private
24	Adel Saif Building Contg	Double storey villa	Adhen	Shaheen Engineering Consultants
25	Al Azab Building Contg	D.st & Kb	Riffa	Maskan Engineering Consultants
26	Al Mase Building Contg	Kichen Block	Dhaith	Al Turath Engineering Consultants
27	Jamhoor Building Contg	D.st & Kb	Ghaleela	Al Hamra Engineering Consultants
28	Al Batreeq Building Contg	St.&Kb	Ghub	AL Zein Design & Engineering Consultants
29	Old Tradition Building Contg	Shop Building	Fahlain	Al Ain Engineering Consultants
30	Muhandus Building Contg	Single storey villa	Dhaith	Hadaf Engineering Consultants
31	Adel Saif Building Contg	Single storey villa	Wadi Alaim	Art Engineering Consultants
32	Al Yahya Building Contg	Bathroom-Green	Julan	Shaheen Engineering Consultants
33	Al Jusoor Building Contg	D.st & Kb	Julfar	Emco Engineering Consultants
34	Sundus Building Contg	Double storey villa	Ghub	Al Ain Engineering Consultants
35	Mirbh Building Contg	Single storey villa	Dhaith	Prime Engineering Consultants
36	Al Malah Building Contg	Double storey villa	Fahlain	Al Makan Engineering Consultants
37	Salahudheen Building Contg	D.st & Kb	Dhaith	Classic Architecture Engineering Consultants
38	Blue Star Building Contg	G+M+5-121	Nakheel	Al Mamar Engineering Consultants

39	Adel Saif Building Contg	D.st & Balcony	Adhen	Golden Triangle Engineering
40	Al Batreeq Building Contg	Bathroom-Green	Dhaith-35	Designer Engineering Consultants
41	Al Mahara Building Contg	Villa G+1	Qusaidath	Al Manazil Engineering Consultants
42	Amlack Building Contg	Double storey villa	Riffa	Top Design Engineering Consultants
43	Bin hantoosh Building Contg	Single storey villa	Wadi al ijeli	Circle Centre Engineering Consultants
44	Old Tradition Building Contg	Masjid main block	Riffa	Maskan Engineering Consultants
45	Al Jerman Building Contg	Double storey villa	Dhaith-172	Maskan Engineering Consultants
46	Al Kenz Building Contg	Kichen Block	Shamal	Rak Engineering Consultants
47	Al Rawaa Building Contg	Double storey villa	Riffa	Union Engineering Consultant
48	Adel Saif Building Contg	Double storey villa	Burairath	Design Centre Engineering Consultants
49	Salasal Building Contg	Single storey villa	Burairath	Al Turath Engineering Consultants
50	Tarmeem Building Contg	Kb&Majlis	Burairath	Rak Engineering Consultants
51	Al Jisr Building Contg	G+1 shop	Sham	Al Mamar Engineering Consultants
52	Private work	Water fountain	Khath	Private
53	Muhandus Building Contg	Double storey villa	Dhaith	Tasmeem Engineering Consultants
54	Hadaf Al Dahabi Building Contg	D.st & Kb	Shamal	Al Zein Design & Engineering Consultants
55	Private work	Outside wall bitumen emultion	Filayya-340	Private
56	Al Thiqa Building Contg	Bathroom-4mm	Aljeer	Private
57	Old Tradition Building Contg	Double storey villa	Wadi haqeel	Arkan Engineering Consultants
58	Muhandus Building Contg	Kichen Block	Burairath	Maskan Engineering Consultants

59	Al Batreeq Building Contg	Bathroom-Green	Dhaith	AL Zein Engineering Consultants
60	Al Majarah Building Contg	D.st villa	Riffa	Emco Engineering Consultants
61	Al Batra Building Contg	Single storey villa	Dhaith	Al Mamar Engineering Consultant
62	Al Jerman Building Contg	St. & Kb	Arabian Shabia	Shaam Engineering Consultant
63	Old Tradition Building Contg	Bath&Kb	Nakheel	Maskan Engineering Consultants
64	Abra Qarath Building Contg	Bathroom	Riffa	Maskan Engineering Consultants
65	Al Skoon Building Contg	Sandwitch sheet	Dhaith-123	Al Burj Engineering Consultants
66	Marhaba Al Saa Building Contg	Double storey villa	Riffa	Emco Engineering Consultants
67	Muhandus Building Contg	Double storey villa	Dhaith-25	Tasmeem Engineering Consultants
68	City Nights Building Contg	Protection Board work	Dhaith	Al Zein Design & Engineering Consultants
69	Al Batra Building Contg	D.st & Kb	Ghub	Rak & Engineering Consultants
70	Saiful Humaidan Building Contg	Double storey villa	Dhaith	Maskan Engineering Consultants
71	APCO Building Contg	Outside wall bitumen emultion	Dhaith	Al Qalaa Engineering Consultants
72	Mast Building Contg	Panel roon	Khor Khwair	Design Centre Engineering Consultants
73	Al Jerman Building Contg	Bathroom-4mm	Riffa	Alamal Engineering Consultants
74	Al Skoon Building Contg	Bathroom-Green	Khath	Al Zein Design & Engineering Consultants
75	Old Tradition Building Contg	Single storey villa	Dhaith-14	Maskan Engineering Consultants
76	Al Thiqa Building Contg	St. & Kb	Aljeer-367	Al Qalaa Engineering Consultants
78	Al Thiqa Building Contg	St. & Kb	Aljeer-378	Al Qalaa Engineering Consultants
79	Al Huda Building Contg	Single storey villa	Rams	Classic Architecture Engineering Consultants
80	Abra Qarath Building Contg	Bath&Kb	Dhaith	Al Mamar Engineering Consultants

DAMSURE

TECHNICAL SERVICES