

ESPLENDIDO FORTRESS

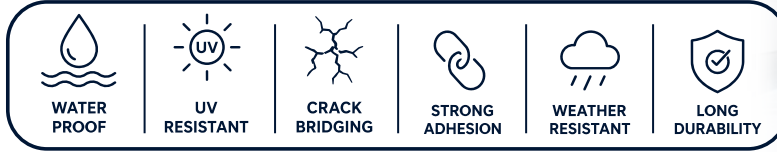
HEAVY DUTY PU

TDS
ESPLENDIDO FORTRESS
HEAVY DUTY PU

ADVANCED POLYURETHANE BASED ELASTOMERIC WATERPROOFING SYSTEM

For Roofs, Terraces, Podiums, Balconies,
Basements & Wet Areas

TECHNICAL DATA SHEET (TDS)



1 Product Description

1.1 Product Overview

ESPLENDIDO FORTRESS HEAVY DUTY PU is an advanced single component, moisture-curing, elastomeric polyurethane waterproofing system engineered for long-term heavy-duty waterproofing protection of exposed and non-exposed construction surfaces.

The system is specially designed to form a seamless, highly elastic, durable, and UV-resistant waterproof membrane capable of providing long-term protection against:

- Water ingress
- Dampness
- Rainwater exposure
- Water ponding conditions
- Environmental weathering
- Moisture-related substrate deterioration

The cured membrane exhibits:

- Excellent adhesion to cementitious substrates
- High elongation and elastomeric flexibility
- Superior crack-bridging performance
- Strong resistance against water penetration

Long-term waterproofing durability under practical service conditions Unlike conventional rigid waterproofing coatings that may crack or debond under substrate movement and moisture activity, ESPLENDIDO FORTRESS HEAVY DUTY PU forms a seamless elastomeric waterproof membrane capable of accommodating limited structural and thermal movement while maintaining waterproofing continuity.

The product is suitable for:

- Concrete roofs and terraces
- Balcony and podium waterproofing
- Wet areas and utility zones
- External concrete protection applications
- Positive-side basement waterproofing systems
- Retaining structures and foundation protection systems
- Industrial and commercial waterproofing applications
- Rehabilitation and maintenance waterproofing systems

1.2 Product Technology

ESPLENDIDO FORTRESS HEAVY DUTY PU is based on advanced moisture-curing polyurethane technology.

After application, the polyurethane system reacts with atmospheric moisture to form a dense, seamless, elastomeric waterproof membrane with strong substrate adhesion and long-term waterproofing performance.

The membrane technology provides:

- Seamless waterproof protection
- High elasticity and flexibility
- Crack-bridging capability
- Positive-side water resistance
- Water ponding resistance
- UV and weather resistance
- Long-term environmental durability

The cured membrane remains highly elastic after curing, helping the system accommodate minor substrate movement and thermal expansion without losing waterproofing continuity.

The system is cold-applied and can be applied by:

- Brush
- Roller
- Airless spray equipment

depending upon site requirements and application conditions.

1.3 System Positioning

ESPLENDIDO FORTRESS HEAVY DUTY PU is not positioned merely as a conventional PU waterproof coating.

The product is engineered to function as the: Final Elastomeric Waterproof Barrier Layer within the:

ESPLENDIDO™ Scientific Multi-Layer Waterproofing System

The system-oriented waterproofing philosophy is designed to address not only external water exposure, but also the internal substrate conditions responsible for many waterproofing failures.

The complete system incorporates:

- Internal moisture stabilization
- Crack and weak-zone stabilization
- Reinforced waterproofing base preparation
- Final elastomeric waterproof protection

This scientific multi-layer approach helps improve:

- Waterproofing adhesion stability
- Resistance to blistering and debonding
- Crack resistance
- Waterproofing continuity
- Long-term membrane durability
- Overall waterproofing reliability

1.4 Waterproofing Philosophy

In practical construction environments, waterproofing failures often occur not only because of poor waterproof coatings, but also because of unstable substrate conditions beneath the coating layer.

Many conventional waterproofing systems focus only on creating a surface-level waterproof layer while ignoring:

- Internal moisture activity
- Capillary water movement
- Salt migration
- Hidden cracks and weak zones
- Dampness beneath coatings
- Substrate instability

Under such conditions, waterproof coatings may eventually experience:

- Blistering
- Debonding
- Cracking
- Leakage recurrence
- Reduced service life

For this reason, the ESPLENDIDO™ Scientific Multi-Layer Waterproofing System is designed to stabilize the substrate before final PU waterproofing application.

The recommended waterproofing system sequence includes:

ESPLENDIDO SILANSTOP™
(Internal Moisture Stabilization Layer)

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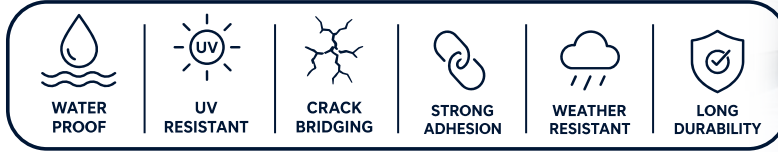
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ESPLENDIDO CRACK FILLER

(Crack & Weak-Zone Stabilization Layer)

ESPLENDIDO SILANSTOP™ AFTER COAT 2K SYSTEM

(Reinforced Waterproofing Base Layer)

ESPLENDIDO FORTRESS HEAVY DUTY PU

(Final Elastomeric Waterproof Barrier Layer)

This integrated approach helps reduce the risks associated with:

- Internal moisture activity
- Waterproofing debonding
- Blistering
- Crack-related failures
- Premature waterproofing deterioration

1.5 Recommended Exposure Conditions

ESPLENDIDO FORTRESS HEAVY DUTY PU is designed for:

- ☑ Positive-side waterproofing exposure conditions
- 🏠 Exposed terrace and roof waterproofing applications
- 🌊 Areas subjected to periodic water ponding
- ☀️ Environmental and weather exposure conditions
- ☁️ Long-term rainwater exposure environments

The product is suitable for use on:

- Properly prepared cementitious substrates
- Stable concrete and screed surfaces
- Moisture-controlled waterproofing base systems
- Properly repaired and stabilized waterproofing substrates

The waterproofing performance of polyurethane membranes improves significantly when applied over:

- 📏 Stable substrates
- 🔧 Crack-repaired surfaces
- 💧 Moisture-stabilized base layers
- 🏠 Properly reinforced waterproofing systems

2 Mechanism of Action

2.1 Moisture-Curing Polyurethane Technology

ESPLENDIDO FORTRESS HEAVY DUTY PU utilizes advanced single component moisture-curing polyurethane technology.

After application, the material reacts with atmospheric moisture and undergoes chemical crosslinking to form a dense, seamless, elastomeric waterproof membrane firmly bonded to the substrate surface.

This curing mechanism allows the system to develop:

- Waterproofing continuity
- Elastomeric flexibility
- Strong substrate adhesion
- Crack-bridging capability
- Environmental durability

The cured membrane forms a continuous waterproof layer without joints or seams, helping reduce potential leakage pathways commonly associated with conventional segmented waterproofing systems.

2.2 Seamless Membrane Formation

After curing, the polyurethane system forms a:

- 🛡️ Seamless waterproof membrane
- 🛡️ Non-porous protective barrier
- 🔄 Flexible elastomeric waterproof layer

The seamless membrane helps:

- Prevent direct water penetration
- Reduce leakage pathways
- Maintain waterproofing continuity
- Improve resistance against water ingress

Unlike conventional sheet-based systems that contain joints and overlaps, the monolithic membrane structure helps provide continuous waterproof protection across the applied surface.

2.3 Elastomeric Waterproofing Mechanism

The elastomeric nature of the polyurethane membrane allows the waterproofing system to remain flexible after curing.

This flexibility helps the membrane:

- Accommodate limited substrate movement
- Resist minor thermal expansion and contraction
- Maintain membrane continuity under service conditions
- Reduce risks of brittle cracking associated with rigid waterproof coatings
- The high elongation characteristics help improve long-term waterproofing reliability in exposed construction environments.

2.4 Crack-Bridging Mechanism

The cured elastomeric membrane demonstrates crack-bridging performance capable of spanning minor non-structural substrate cracks. This characteristic helps:

- Maintain waterproofing continuity over minor substrate movement
- Reduce water ingress through micro-cracks
- Improve long-term waterproofing stability
- Reduce localized waterproofing failure risks
- Where required, reinforcement fabric integration may further improve crack-bridging and waterproofing performance at critical joints and detailing areas.

2.5 Adhesion & Waterproofing Performance

The waterproofing effectiveness of polyurethane membranes depends heavily upon strong adhesion with the substrate surface.

ESPLENDIDO FORTRESS HEAVY DUTY PU is engineered to achieve excellent adhesion with:

- Concrete
- Cement screeds
- Cementitious waterproofing bases
- Properly prepared masonry substrates

The membrane helps:

- Resist water ingress
- Reduce moisture penetration

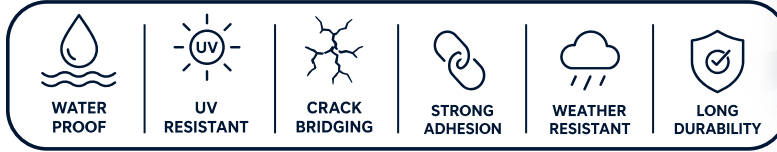
Maintain waterproofing integrity under environmental exposure conditions
Provide long-term waterproof protection under positive-side water exposure

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2.6 System-Level Waterproofing Mechanism

In practical site conditions, waterproof coating failures often originate from substrate instability rather than failure of the coating material itself. Substrates affected by:

-  Internal moisture activity
-  Salt migration
-  Dampness beneath coatings
-  Hidden cracks

Weak cementitious zones may eventually develop:
Blistering

-  Adhesion loss
-  Waterproofing debonding
-  Premature coating failure

For this reason, ESPLENDIDO FORTRESS HEAVY DUTY PU is engineered to function as part of the:

ESPLENDIDO™ Scientific Multi-Layer Waterproofing System
Within the system:

ESPLENDIDO SILANSTOP™ helps stabilize internal moisture movement and reduce salt migration

ESPLENDIDO CRACK FILLER helps repair cracks and stabilize weak zones

ESPLENDIDO SILANSTOP™ AFTER COAT 2K SYSTEM provides a reinforced waterproofing base layer

ESPLENDIDO FORTRESS HEAVY DUTY PU provides the final seamless elastomeric waterproof barrier

This integrated waterproofing mechanism helps improve:

- Waterproofing continuity
- Adhesion stability
- Crack resistance
- Resistance to blistering and debonding
- Long-term waterproofing reliability

3 Why This System Is Necessary

3.1 Why Conventional Waterproofing Systems Fail

In practical construction environments, many waterproofing systems fail not only because of external water exposure, but also because of unstable substrate conditions beneath the waterproof coating.






Many conventional waterproofing systems focus primarily on creating a surface waterproof layer while ignoring:

- Internal moisture activity
- Capillary water movement
- Salt migration
- Hidden cracks and weak zones
- Dampness beneath coatings
- Substrate instability

As a result, even high-quality waterproof coatings may eventually experience:

- Blistering
- Debonding
- Cracking
- Leakage recurrence
- Reduced waterproofing service life

In exposed terrace and roof applications, this problem becomes more severe due to:






-  Continuous rainwater exposure
-  Water ponding conditions
-  Thermal movement
-  UV exposure
-  Environmental weathering

If the substrate beneath the coating remains unstable or moisture-active, long-term waterproofing performance may be significantly reduced.

3.2 Internal Moisture & Substrate Instability

Concrete, plaster, screed, and masonry substrates contain interconnected capillary pore structures through which moisture may continue to move internally.

Moisture activity may originate from:

-  Rainwater penetration
-  Existing leakage conditions
-  Residual construction moisture
-  Capillary water absorption
-  Water ingress through cracks and weak zones

This internal moisture activity may lead to:






- Dampness beneath coatings
- Salt migration within the substrate
- Efflorescence formation
- Pressure build-up beneath waterproof membranes
- Adhesion reduction over time

Under such conditions, surface-level waterproof coatings alone may not provide reliable long-term performance.

3.3 Salt Migration & Waterproofing Failure

Dissolved salts present within concrete and masonry substrates may migrate internally through moisture movement.

Over time, this salt movement may contribute to:

-  Efflorescence formation
-  Surface deterioration
-  Moisture accumulation beneath coatings
-  Waterproofing debonding
-  Reduced membrane adhesion

This phenomenon is one of the major reasons why conventional waterproof coatings may fail despite appearing initially effective.

The risk becomes higher in:

- Damp substrates
- Leakage-prone structures
- Water-exposed terraces and roofs
- Poorly stabilized cementitious surfaces

For this reason, controlling internal moisture activity before final PU waterproofing application is critically important.

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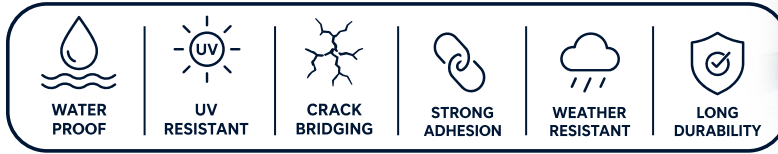
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3.4 Importance of Crack & Weak-Zone Treatment

Cracks and weak substrate zones act as direct pathways for water ingress and moisture penetration.

If left untreated, such areas may:

- Accelerate waterproofing failure
- Allow continuous water ingress
- Increase localized pressure beneath coatings
- Reduce membrane continuity
- Trigger future leakage problems

Proper crack and weak-zone stabilization helps:

- Improve substrate continuity
- Reduce leakage pathways
- Improve adhesion stability
- Increase long-term waterproofing reliability

3.5 Importance of Multi-Layer Waterproofing Systems

A scientifically engineered waterproofing system should address:

- Internal substrate stability
- Moisture movement control
- Crack stabilization
- Waterproofing base reinforcement
- Final waterproof barrier protection

Relying only on a single surface coating layer may not always provide reliable long-term waterproofing performance under demanding exposure conditions.

The ESPLENDIDO™ Scientific Multi-Layer Waterproofing System is designed to provide:

- Internal moisture stabilization
- Crack and weak-zone stabilization
- Reinforced waterproofing base preparation
- Final elastomeric waterproof protection

This coordinated system approach helps improve:




- Waterproofing durability
- Adhesion reliability
- Crack resistance
- Waterproofing continuity
- Long-term exposure performance

3.6 Importance of Moisture-Stabilized Substrates Before PU Application

Polyurethane waterproofing membranes perform best when applied over:

- Stable cementitious substrates
- Crack-repaired surfaces
- Moisture-controlled waterproofing bases
- Properly reinforced waterproofing systems

Applying PU waterproofing directly over unstable or moisture-active substrates may increase the risks of:

-  Blistering
-  Adhesion loss
-  Waterproofing debonding






Premature membrane deterioration

For this reason, the recommended waterproofing sequence includes:

- ESPLENDIDO SILANSTOP™ for internal moisture stabilization
- ESPLENDIDO CRACK FILLER for crack and weak-zone treatment
- ESPLENDIDO SILANSTOP™ AFTER COAT 2K SYSTEM for reinforced waterproofing base preparation

ESPLENDIDO FORTRESS HEAVY DUTY PU as the final elastomeric waterproof barrier layer

This integrated waterproofing approach helps improve:






-  Waterproofing adhesion stability
-  Membrane durability
-  Resistance to blistering and debonding
-  Crack-bridging reliability
-  Long-term waterproofing performance under practical site conditions.

4 Why This System Is Necessary

4.1 Internal Moisture Stabilization Layer

The first stage of the waterproofing system involves internal substrate stabilization using ESPLENDIDO SILANSTOP™.

In practical construction conditions, many waterproofing failures originate from:

-  Internal capillary moisture movement
-  Dampness beneath coatings
-  Salt migration within the substrate
-  Moisture-active cementitious surfaces
-  Hidden weak zones and micro-cracks

Such conditions may continue beneath conventional waterproof coatings and gradually result in:

- Blistering
- Adhesion failure
- Waterproofing debonding
- Efflorescence formation
- Recurring leakage problems

ESPLENDIDO SILANSTOP™ is designed to help stabilize internal substrate conditions before the application of the final waterproofing system.

The treatment helps:

- Reduce internal capillary moisture activity
- Minimize dissolved salt migration
- Reduce conditions responsible for efflorescence formation
- Improve substrate stability
- Reduce moisture-related waterproofing failures

This stage forms the foundation of the:

ESPLENDIDO™ Dual Protection Waterproofing Philosophy which addresses:

Internal substrate stabilization and External waterproof protection as part of a coordinated waterproofing system.

4.2 Crack & Weak-Zone Stabilization Layer

After substrate moisture stabilization, cracks, weak zones, damaged areas, and leakage-prone regions are repaired using:

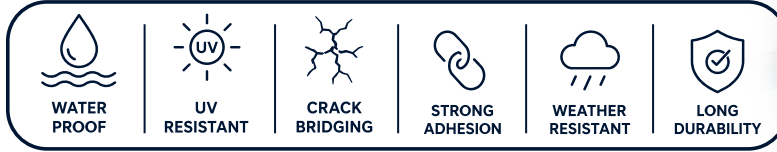
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Basements & Wet Areas

TECHNICAL DATA SHEET (TDS)



ESPLENDIDO CRACK FILLER

Cracks and weak substrate zones are among the most critical causes of waterproofing failure because they act as direct pathways for:

-  Water ingress
-  Moisture penetration
-  Membrane stress concentration
-  Localized waterproofing failure

Untreated cracks beneath waterproof coatings may eventually lead to:

- Membrane rupture
- Water seepage
- Adhesion reduction
- Waterproofing debonding
- Recurring leakage conditions

The crack stabilization stage helps:

- Repair damaged substrate zones
- Improve surface continuity
- Stabilize weak cementitious areas
- Reduce leakage pathways
- Improve waterproofing system reliability

This stage is essential for creating a stable and properly prepared waterproofing substrate before reinforced waterproofing and PU membrane application.

4.3 Reinforced Waterproofing Base Layer

After crack stabilization, the substrate is reinforced using:

ESPLENDIDO SILANSTOP™ AFTER COAT 2K SYSTEM

This stage acts as an intermediate reinforced waterproofing layer between the stabilized substrate and the final elastomeric PU waterproof membrane.

The reinforced waterproofing base helps:

- Improve substrate integrity
- Improve waterproofing adhesion stability
- Reduce minor surface irregularities
- Bridge minor non-structural cracks
- Improve membrane support conditions
- Strengthen the waterproofing base system

The reinforced layer also helps distribute stresses more uniformly across the waterproofing assembly, thereby improving long-term membrane performance under practical exposure conditions.

This stage becomes particularly important in:

- Exposed terrace waterproofing
- Water ponding areas
- Roof slab waterproofing
- Rehabilitation waterproofing applications
- Leakage-prone concrete structures

4.4 Final Elastomeric Waterproof Barrier Layer

The final waterproof barrier layer is formed using:

ESPLENDIDO FORTRESS HEAVY DUTY PU

The polyurethane membrane forms a:

- Seamless waterproof membrane
- Highly elastic waterproof layer
- Non-porous waterproof barrier
- UV and weather resistant protective coating

The cured membrane helps provide:

- Long-term waterproof protection
- Positive-side water resistance
- Water ponding resistance
- Crack-bridging performance
- Environmental exposure resistance
- Durable elastomeric waterproofing continuity

Unlike rigid waterproof coatings, the elastomeric polyurethane membrane retains flexibility after curing, allowing it to accommodate limited thermal and substrate movement while maintaining waterproofing integrity.

The seamless nature of the membrane helps eliminate:

- Joint-related leakage pathways
- Surface discontinuities
- Weak overlap zones commonly associated with sheet systems

This final layer completes the:

ESPLENDIDO™ Scientific Multi-Layer Waterproofing System and functions as the primary long-term waterproof barrier under exposed service conditions.

4.5 Anti-Blistering & Waterproofing Stability Concept

One of the major causes of PU waterproofing failure in practical construction conditions is:

- Residual substrate moisture
- Dampness trapped beneath coatings
- Internal vapour pressure build-up
- Salt migration beneath membranes
- Unstable substrate conditions

Under such conditions, even high-performance waterproof coatings may eventually develop:

- Blistering
- Bubbling
- Adhesion loss
- Waterproofing debonding
- Premature membrane deterioration

The ESPLENDIDO™ Scientific Multi-Layer Waterproofing System is designed to reduce these risks through:

- Internal moisture stabilization
- Crack and weak-zone repair
- Reinforced waterproofing base preparation
- Stabilized substrate conditions before PU membrane application

This coordinated system approach helps improve:

- Waterproofing adhesion stability
- Membrane durability
- Resistance to blistering and debonding
- Long-term waterproofing reliability

when compared with conventional surface-only waterproof coating approaches.

4.6 System-Level Waterproofing Performance

The complete:

ESPLENDIDO™ Scientific Multi-Layer Waterproofing System is engineered to function as an integrated waterproofing assembly rather than as isolated waterproof coating layers.

The coordinated system structure helps address:

- Internal substrate instability
- Crack-related water ingress
- Waterproofing adhesion challenges
- Environmental exposure stresses
- Long-term waterproofing durability requirements



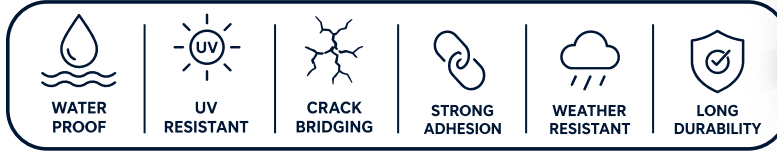
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By combining:

- Internal moisture stabilization
- Crack & weak-zone stabilization
- Reinforced waterproofing base preparation

Final elastomeric waterproof barrier protection the system helps provide:

- Improved waterproofing continuity
- Enhanced adhesion reliability
- Reduced risk of coating failure
- Better crack resistance
- Improved environmental durability

Long-term waterproofing stability under practical service conditions

The system is suitable for:

- Terrace waterproofing
- Roof slab waterproofing
- Balcony and podium waterproofing
- Wet area waterproofing
- Positive-side basement waterproofing
- Retaining structure waterproofing
- Industrial and commercial waterproofing systems

Rehabilitation waterproofing applications and is designed for demanding waterproofing environments requiring long-term elastomeric waterproof protection.

5 Recommended ESPLENDIDO™ Waterproofing System Build-Up

Step 1: Surface Preparation & Cleaning



The substrate must first be properly prepared before waterproofing application.

The surface should be:

- Structurally sound
- Properly cured
- Free from dust and loose particles
- Free from grease, oil, laitance, and contaminants
- Free from unstable coatings and weak material

Existing:

- Loose plaster
- Weak screeds
- Damaged coatings
- Algae and fungal growth
- Dust deposits

must be completely removed before application.

Proper drainage slope should also be ensured to avoid long-term water accumulation and excessive ponding stress on the waterproofing system.

Proper surface preparation is essential for:

- Waterproofing adhesion
- Membrane continuity
- Long-term waterproofing durability
- Overall system reliability



Step 2: ESPLENDIDO SILANSTOP™ (Internal Moisture Stabilization Layer)

After surface preparation, ESPLENDIDO SILANSTOP™ is applied as the internal moisture stabilization layer.

This stage helps:

- Reduce internal capillary moisture movement
- Reduce dissolved salt migration
- Minimize conditions responsible for efflorescence formation
- Reduce dampness beneath coatings
- Improve substrate stability before waterproofing application

This stage is especially important in:

- Damp terraces
- Leakage-prone roofs
- Moisture-active concrete surfaces
- Rehabilitation waterproofing projects

The moisture stabilization stage forms the base foundation of the: ESPLENDIDO™ Dual Protection Waterproofing Philosophy which combines:

Internal substrate stabilization with External waterproof membrane protection.



Step 3: ESPLENDIDO CRACK FILLER (Crack Repair & Surface Stabilization Layer)

After substrate stabilization, cracks, weak zones, joints, and damaged areas are repaired using:

ESPLENDIDO CRACK FILLER

This stage helps:

- Seal leakage-prone cracks
- Reduce water ingress pathways
- Stabilize weak cementitious zones
- Improve waterproofing continuity
- Improve membrane support conditions
- Reduce future waterproofing failure risks

Proper crack stabilization is essential for:

- Long-term waterproofing reliability
- Crack resistance
- Membrane continuity
- Waterproofing durability under service conditions.



Step 4: ESPLENDIDO SILANSTOP™ AFTER COAT 2K SYSTEM (Reinforced Waterproofing Base Layer)

After crack stabilization, the substrate is reinforced using:

ESPLENDIDO SILANSTOP™ AFTER COAT 2K SYSTEM

This reinforced waterproofing base layer helps:

- Improve substrate integrity
- Improve waterproofing adhesion stability
- Strengthen the waterproofing base
- Improve crack resistance

Reduce stress concentration beneath the PU membrane Prepare the substrate for final elastomeric waterproofing application.

This intermediate reinforced layer improves the stability and durability of the overall waterproofing assembly.



Step 5: ESPLENDIDO FORTRESS HEAVY DUTY PU (Final Elastomeric Waterproof Barrier Layer)

The final waterproof barrier layer is formed using:

ESPLENDIDO FORTRESS HEAVY DUTY PU

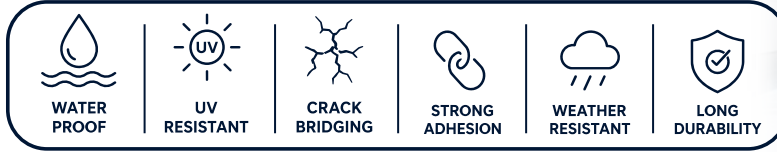
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The cured polyurethane membrane provides:

- Seamless waterproof protection
- Elastomeric crack-bridging performance
- Positive-side water resistance
- Water ponding resistance
- UV and weather resistance
- Long-term waterproofing durability

The membrane forms a:

- Continuous waterproof barrier
- Highly elastic waterproof membrane

Durable environmental protection layer suitable for:

- Exposed terrace waterproofing
- Roof slabs
- Podiums
- Balconies

Positive-side basement waterproofing systems
Industrial and commercial waterproofing applications.

5.6 System Advantages The:

ESPLENDIDO™ Scientific Multi-Layer Waterproofing System helps provide:

- Internal moisture stabilization
- Crack and weak-zone stabilization
- Reinforced waterproofing support
- Long-term elastomeric waterproof protection

The system helps improve:

- Waterproofing continuity
- Adhesion stability
- Crack resistance
- Resistance to blistering and debonding
- Environmental exposure durability

Long-term waterproofing reliability when compared with conventional surface-only waterproof coating systems.

6 Key Performance Features

6.1 Seamless Waterproof Membrane

Forms a continuous seamless waterproof membrane without joints or overlaps, helping reduce leakage pathways and waterproofing discontinuities.

6.2 Single Component Moisture-Curing System

Advanced single component polyurethane system designed to cure through reaction with atmospheric moisture, forming a dense elastomeric waterproof membrane.

6.3 Cold Applied Waterproofing System

Cold-applied waterproofing technology eliminates the need for heat application equipment and allows safer and easier site application.

6.4 High Elastomeric Flexibility

The cured membrane remains highly elastic and flexible after curing, helping accommodate limited thermal and substrate movement.

6.5 High-Elongation Crack-Bridging Performance

Demonstrates excellent crack-bridging capability for minor non-structural substrate cracks under practical service conditions.

6.6 Strong Adhesion to Cementitious Substrates

Engineered to provide excellent adhesion on:

- Concrete
- Cement screeds
- Cementitious waterproofing bases
- Masonry surfaces when properly prepared.

6.7 Positive Water Pressure Resistance

Designed for positive-side waterproofing applications subjected to direct water exposure and rainwater penetration.

6.8 Water Ponding Resistance

Provides durable waterproof protection in areas exposed to periodic water ponding and continuous moisture exposure.

6.9 UV & Weather Resistance

Resists environmental weathering, UV exposure, and outdoor climatic conditions under exposed waterproofing applications.

6.10 Anti-Carbonation Protection

Helps provide additional protection against carbonation-related deterioration of concrete surfaces.

6.11 Long-Term Waterproofing Durability

Engineered for long-term waterproofing performance under demanding environmental and exposure conditions.

6.12 Improved Waterproofing Stability

The system-oriented waterproofing approach helps improve substrate stability and overall waterproofing reliability.

6.13 Reduced Risk of Blistering & Debonding

When applied over properly stabilized substrates, the system helps reduce:

- Blistering risks
- Adhesion loss
- Waterproofing debonding
- Moisture-related coating failures.

6.14 Easy Brush / Roller / Airless Spray Application

Can be applied using:

- Brush
- Roller

Airless spray equipment depending upon application requirements and site conditions.

6.15 Terrace, Basement & Structural Waterproofing Compatibility Suitable for:

- Terrace waterproofing
- Roof slabs
- Podiums
- Balconies
- Positive-side basement waterproofing
- Retaining structures
- Foundation waterproofing systems
- Industrial and commercial waterproofing applications.

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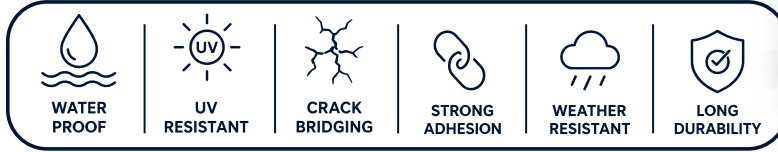
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ESPLENDIDO FORTRESS
HEAVY DUTY PU

ADVANCED POLYURETHANE BASED ELASTOMERIC WATERPROOFING SYSTEM






For Roofs, Terraces, Podiums, Balconies,
Basements & Wet Areas

TECHNICAL DATA SHEET (TDS)



6.16 Scientifically Designed Multi-Layer Waterproofing System Functions as the:

Final Elastomeric Waterproof Barrier Layer within the:
ESPLENDIDO™ Scientific Multi-Layer Waterproofing System designed to improve:

-  Waterproofing durability
-  Adhesion stability
-  Crack resistance
-  Environmental exposure performance
-  Long-term waterproofing reliability under practical service conditions.

7 Seamless Elastomeric Waterproofing Technology

7.1 Seamless Membrane Formation
ESPLENDIDO FORTRESS HEAVY DUTY PU is engineered to form a seamless, monolithic elastomeric waterproof membrane after curing.

Unlike conventional sheet-based waterproofing systems that contain joints, overlaps, and seam lines, the polyurethane membrane forms a continuous waterproof layer across the applied substrate surface.

- The seamless membrane structure helps:
- Eliminate joint-related leakage pathways
 - Reduce waterproofing discontinuities
 - Improve waterproofing continuity
 - Minimize localized weak zones

Improve long-term waterproofing reliability
The cured membrane forms a dense, non-porous waterproof barrier capable of resisting water ingress and environmental moisture exposure under practical service conditions.

The seamless waterproofing mechanism becomes especially important in:





- Exposed terrace waterproofing
- Roof slab waterproofing
- Water ponding areas
- Podiums and balconies
- Positive-side basement waterproofing systems
- Complex detailing and irregular surfaces

where traditional jointed systems may become vulnerable to leakage over time.

7.2 Highly Elastic Polyurethane Membrane
The cured polyurethane membrane retains high elastomeric flexibility after curing.

- This flexibility allows the membrane to:
- Accommodate limited substrate movement
 - Resist thermal expansion and contraction stresses
 - Maintain membrane continuity under service conditions

Reduce risks of brittle cracking associated with rigid waterproof coatings
The highly elastic membrane structure helps improve long-term waterproofing performance in exposed construction environments subjected to:

-  Thermal cycling
-  Structural movement
-  Environmental weathering
-  Repeated wet-dry exposure conditions

The elastomeric waterproofing behaviour helps the membrane maintain waterproofing integrity even under moderate substrate movement conditions.

7.3 Dynamic Crack-Bridging Performance
ESPLENDIDO FORTRESS HEAVY DUTY PU demonstrates excellent crack-bridging performance for minor non-structural substrate cracks.

The elastomeric membrane helps:

- Span minor substrate cracks
- Maintain waterproofing continuity across localized movement areas
- Reduce water ingress through surface micro-cracks
- Improve long-term waterproofing reliability

The crack-bridging performance becomes especially important in:

- Roof slabs
- Terrace waterproofing systems
- Podiums and balconies
- Cement screeds

Rehabilitation waterproofing applications

where minor substrate movement and thermal stresses are common under service conditions.

Where required, reinforcement fabric integration may further improve crack-bridging performance at:

- Construction joints
- Expansion details
- Critical transition areas
- Stress concentration zones

7.4 Positive Water Pressure & Water Ponding Resistance

The cured membrane is designed to resist:

- Positive-side water exposure
- Rainwater penetration
- Surface water accumulation
- Periodic water ponding conditions

The waterproof membrane forms a continuous protective barrier that helps reduce water ingress into the substrate.

This characteristic is especially important in:

- Flat terraces
- Roof slabs
- Podiums
- Balconies
- Wet exposure areas
- Exposed waterproofing environments

The membrane is engineered for long-term waterproofing performance under demanding exposure conditions involving repeated:

- Wet-dry cycles
- Rainwater exposure
- Water accumulation
- Environmental moisture exposure

Proper slope and drainage design should still be maintained as part of good waterproofing practice.

7.5 Adhesion & Surface Bonding Performance
Long-term waterproofing performance depends heavily upon reliable membrane adhesion with the substrate surface.

ESPLENDIDO FORTRESS HEAVY DUTY PU is engineered to achieve strong adhesion on:

- Concrete surfaces
- Cement screeds
- Cementitious waterproofing bases
- Masonry substrates
- Reinforced waterproofing layers

when properly prepared.

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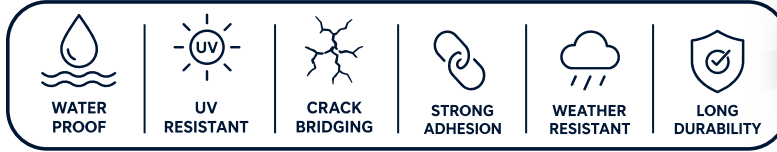
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HEAVY DUTY PU

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TECHNICAL DATA SHEET (TDS)



The strong bonding characteristics help:

- Improve waterproofing continuity
- Reduce risks of membrane lifting
- Improve environmental durability
- Improve resistance to water ingress
- Enhance long-term waterproofing stability

The system demonstrates improved performance when applied over:
Stable substrates

- Moisture-controlled surfaces
- Properly repaired waterproofing bases
- Reinforced substrate systems

7.6 Long-Term Exposure Durability

The polyurethane membrane is engineered for long-term environmental durability under practical exposure conditions.

The cured membrane helps resist:

- Environmental weathering
- Repeated wet-dry cycles
- Moisture exposure
- Surface water accumulation
- Outdoor service conditions

The durable elastomeric structure helps maintain waterproofing performance over extended service periods when applied as part of the: ESPLENDIDO™ Scientific Multi-Layer Waterproofing System

The multi-layer waterproofing approach helps improve:

- Adhesion stability
- Membrane support conditions
- Crack resistance
- Waterproofing reliability
- Long-term environmental performance

under demanding site conditions.

7.7 UV Stability & Weather Resistance Characteristics

ESPLENDIDO FORTRESS HEAVY DUTY PU demonstrates resistance against:

- ☀️ UV exposure
- ☁️ Environmental weathering
- 🌡️ Outdoor climatic conditions
- ☀️ Sunlight exposure
- ☔️ Rainwater exposure

The membrane is suitable for exposed waterproofing applications where long-term environmental resistance is required.

The UV and weather resistant characteristics help:

- Maintain membrane stability
- Reduce premature surface deterioration
- Improve outdoor waterproofing durability
- Improve long-term membrane reliability under exposed conditions

This makes the system suitable for:

- Exposed terraces
- Roof slabs
- Podiums
- External concrete protection applications

subjected to continuous outdoor exposure conditions.

7.8 Anti-Blistering Performance on Stabilized Substrates

One of the major causes of PU waterproofing failure is:

- Internal substrate moisture
- Vapour pressure beneath coatings
- Salt migration activity
- Moisture-active substrates
- Weak waterproofing bases

Under such conditions, conventional PU coatings may eventually develop:

- Blistering
- Bubbling
- Adhesion loss
- Waterproofing debonding

The: ESPLENDIDO™ Scientific Multi-Layer Waterproofing System is designed to reduce these risks through:

- Internal moisture stabilization
- Crack and weak-zone stabilization
- Reinforced waterproofing base preparation
- Stabilized substrate conditions before PU membrane application

When applied over properly stabilized substrates, the system helps improve:

- Adhesion stability
- Waterproofing continuity
- Membrane durability
- Resistance to blistering and debonding
- Long-term waterproofing reliability

under practical site conditions.

8 Technical Characteristics

8.1 Physical Properties

ESPLENDIDO FORTRESS HEAVY DUTY PU is a single component polyurethane waterproofing material formulated to provide:

- ☞ High elastomeric flexibility
- ☞ Strong substrate adhesion
- ☞ Durable waterproof membrane formation
- ☞ Long-term environmental resistance

The material forms a:

- Smooth seamless membrane
- Dense non-porous waterproof layer
- Highly elastic waterproof coating after curing.

The membrane is available in suitable waterproofing shades and is engineered for exposed and non-exposed waterproofing applications.

8.2 Mechanical Properties

- The cured membrane demonstrates:
 - Excellent elongation characteristics
 - High elastomeric flexibility
 - Strong tensile performance
 - Crack-bridging capability
 - Surface stress accommodation

These characteristics help improve membrane performance under:

- Thermal expansion and contraction
- Minor substrate movement
- Wet-dry exposure cycles
- Environmental stress conditions

The elastomeric membrane structure helps reduce brittle waterproofing failure commonly associated with rigid waterproof coatings.

8.3 Elastomeric Properties

The polyurethane membrane retains elasticity after curing and helps maintain waterproofing continuity under practical service conditions.

The elastomeric characteristics help:

- Accommodate limited substrate movement
- Maintain flexibility over time
- Resist crack propagation
- Improve long-term membrane stability

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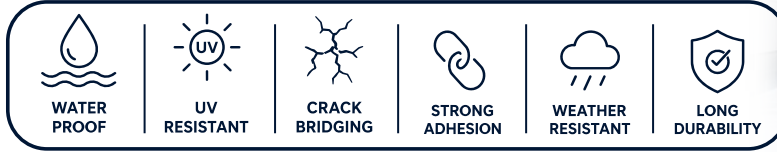
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HEAVY DUTY PU

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Basements & Wet Areas

TECHNICAL DATA SHEET (TDS)



8.4 Adhesion Characteristics

The waterproof membrane demonstrates excellent adhesion on:
Concrete

- Cementitious screeds
- Reinforced waterproofing bases
- Masonry surfaces
- Properly prepared construction substrates

The strong bonding characteristics help:

- Improve waterproofing continuity
- Resist membrane lifting
- Improve environmental durability
- Reduce localized waterproofing failure risks

The system demonstrates improved performance when applied over:

- Stable substrates
- Properly repaired surfaces
- Moisture-controlled waterproofing bases

8.5 Waterproofing Characteristics

The cured membrane forms a continuous waterproof barrier that helps:

- Resist water ingress
- Reduce rainwater penetration
- Improve resistance against water ponding conditions
- Protect the substrate from moisture exposure

The waterproof membrane is suitable for:

- Positive-side waterproofing exposure conditions
- Exposed terrace waterproofing
- Roof slabs
- Podiums
- Balconies
- Wet exposure environments

The membrane helps maintain waterproofing continuity under demanding environmental conditions.

8.6 Chemical & Environmental Resistance Characteristics

The membrane demonstrates resistance against:

- Atmospheric exposure
- Moisture exposure
- Environmental weathering
- Mild alkaline construction environments
- Outdoor climatic conditions

The durable polyurethane structure helps improve:

- Long-term environmental resistance
- Waterproofing durability
- Outdoor membrane stability
- Surface protection performance under practical site conditions.

8.7 UV & Weather Resistance Characteristics

The membrane is engineered to resist:

- UV exposure
- Outdoor weathering
- Rainwater exposure
- Environmental aging conditions

The UV resistant characteristics help:

- Improve exposed waterproofing durability
- Maintain membrane stability
- Reduce premature weather-related deterioration
- Improve long-term waterproofing performance in outdoor waterproofing applications.

8.8 Thermal Performance Characteristics

The elastomeric membrane helps accommodate moderate thermal movement associated with:

- Day-night temperature variation
- Surface heating and cooling cycles
- Environmental thermal stress conditions

The membrane retains flexibility under practical service temperature conditions and helps reduce stress-related waterproofing deterioration.

8.9 System Compatibility Characteristics

ESPLENDIDO FORTRESS HEAVY DUTY PU is designed to function as the final waterproof barrier layer within the:

ESPLENDIDO™ Scientific Multi-Layer Waterproofing System

The system is compatible with:

- ESPLENDIDO SILANSTOP™
- ESPLENDIDO CRACK FILLER
- ESPLENDIDO SILANSTOP™ AFTER COAT 2K SYSTEM

The coordinated multi-layer waterproofing approach helps improve:

- Waterproofing adhesion stability
- Crack resistance
- Resistance to blistering and debonding
- Waterproofing continuity
- Long-term environmental durability

under practical construction conditions.

9 Technical Data

9.1 Physical Data

Property	Test Method	Typical Value
Appearance	Visual	Viscous Liquid
Base Chemistry	Internal Evaluation	Polyurethane
Colour	Visual	Grey / White
Specific Gravity	ASTM D1475	1.25 ± 0.05
Solid Content	ASTM D2369	85 ± 2%
Consistency	Internal Evaluation	Smooth Elastomeric Coating

9.2 Mechanical Data

Property	Test Method	Typical Value
Tensile Strength	ASTM D412	> 2.5 MPa
Elongation at Break	ASTM D412	> 500%
Shore A Hardness	ASTM D2240	55 – 65 A
Crack-Bridging Performance	Internal Evaluation	Excellent
Flexibility Performance	Internal Evaluation	Excellent

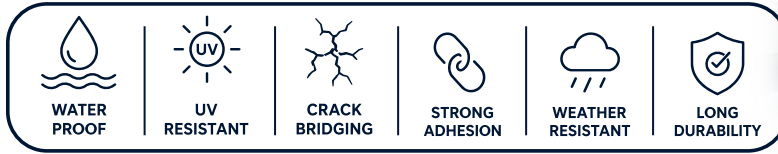
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HEAVY DUTY PU

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Basements & Wet Areas

TECHNICAL DATA SHEET (TDS)



9.3 Waterproofing Performance Data

Property	Test Method	Typical Value
Water Resistance	ASTM D4068	Excellent
Positive Water Resistance	Internal Evaluation	Excellent
Water Ponding Resistance	Internal Evaluation	Excellent
Waterproof Membrane Continuity	Internal Evaluation	Seamless Continuous Layer
Water Ingress Resistance	Internal Evaluation	Excellent

9.4 Adhesion & Flexibility Data

Property	Test Method	Typical Value
Adhesion to Concrete	ASTM D4541	Excellent
Adhesion Stability	Internal Evaluation	Excellent
Elastomeric Flexibility	Internal Evaluation	Excellent
Thermal Movement Accommodation	Internal Evaluation	Good

9.5 Environmental Exposure Data

Property	Test Method	Typical Value
UV Resistance	ASTM G154	Excellent
Weather Resistance	Internal Evaluation	Excellent
Service Temperature	Internal Evaluation	-10°C to 80°C
Application Temperature	Internal Evaluation	10°C to 45°C
Environmental Durability	Internal Evaluation	Excellent

10 Performance & Test Methods

10.1 Performance Test Summary

The performance characteristics of ESPLENDIDO FORTRESS HEAVY DUTY PU are evaluated through relevant laboratory evaluations, internal performance studies, and practical waterproofing exposure assessments intended to assess:

- Waterproofing performance
- Adhesion characteristics
- Elastomeric flexibility
- Crack-bridging behaviour
- Water resistance
- UV and environmental durability
- Long-term membrane stability

The system is engineered to provide reliable elastomeric waterproofing performance under demanding construction and environmental exposure conditions.

10.2 Waterproofing Performance Overview

The cured polyurethane membrane forms a seamless, non-porous waterproof barrier that helps:

- Reduce water ingress
- Resist rainwater penetration
- Improve waterproofing continuity
- Protect the substrate against moisture exposure

The membrane is suitable for:

- Positive-side waterproofing applications
- Exposed terrace waterproofing systems
- Roof slabs
- Podiums and balconies
- Wet exposure environments

The seamless elastomeric membrane structure helps minimize leakage pathways commonly associated with jointed or discontinuous waterproofing systems.

The waterproofing system demonstrates improved long-term performance when applied over:

- Stable cementitious substrates
- Crack-repaired surfaces
- Moisture-controlled waterproofing bases
- Reinforced waterproofing systems

10.3 Crack-Bridging & Elongation Performance

The elastomeric polyurethane membrane demonstrates:

- High elongation characteristics
- Excellent flexibility
- Dynamic crack-bridging performance
- Resistance to brittle cracking

The membrane is capable of accommodating:

- Minor non-structural substrate movement
- Thermal expansion and contraction stresses
- Localized movement conditions under service exposure

These elastomeric characteristics help:

- Maintain waterproofing continuity
- Reduce crack-related leakage risks
- Improve long-term waterproofing stability

The system may also be used with reinforcement fabric integration at:

- Critical joints
- Transition areas
- Stress concentration zones
- High movement detailing locations where additional reinforcement support is required.

10.4 Water Ponding & Positive Pressure Resistance

ESPLENDIDO FORTRESS HEAVY DUTY PU is designed to resist:

- Positive-side water exposure
- Surface water accumulation
- Rainwater penetration
- Periodic water ponding conditions

The dense seamless membrane helps reduce direct water ingress into the substrate while maintaining waterproofing continuity under prolonged moisture exposure conditions.

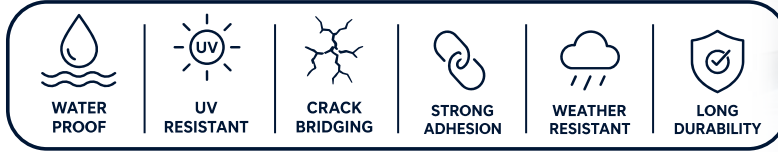
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ADVANCED POLYURETHANE BASED ELASTOMERIC WATERPROOFING SYSTEM

For Roofs, Terraces, Podiums, Balconies,
Basements & Wet Areas

TECHNICAL DATA SHEET (TDS)



The membrane demonstrates reliable waterproofing performance in:

- Flat terraces
- Roof slabs
- Podiums
- Balconies

Exposed waterproofing areas subjected to repeated:

- Wet-dry cycles
- Rainwater exposure
- Water accumulation conditions

Proper drainage slope and water management practices should still be maintained as part of good waterproofing design.

10.5 Durability & Environmental Exposure Performance

The cured polyurethane membrane demonstrates resistance against:

- ☀️ UV exposure
- ☁️ Environmental weathering
- 🌬️ Outdoor climatic conditions
- 💧 Surface moisture exposure
- 🔄 Repeated environmental stress conditions

The elastomeric membrane structure helps maintain:

- Waterproofing continuity
- Surface flexibility
- Adhesion stability
- Long-term waterproofing durability

under practical site conditions.

The UV and weather resistant characteristics make the system suitable for:

- Exposed terrace waterproofing
- Roof slabs
- Podiums
- External waterproofing applications

subjected to continuous outdoor exposure.

10.6 System-Level Waterproofing Performance

The long-term performance of waterproofing systems depends not only on the final waterproof membrane, but also on:

- Substrate stability
- Internal moisture conditions
- Crack treatment quality
- Waterproofing base preparation

For this reason, ESPLENDIDO FORTRESS HEAVY DUTY PU is designed to function as the:

Final Elastomeric Waterproof Barrier Layer within the:

ESPLENDIDO™ Scientific Multi-Layer Waterproofing System

The integrated system approach combines:

- Internal moisture stabilization
- Crack and weak-zone stabilization
- Reinforced waterproofing base preparation
- Final elastomeric waterproof protection

This coordinated waterproofing approach helps improve:

- Waterproofing continuity
- Adhesion stability
- Resistance to blistering and debonding
- Crack resistance
- Long-term waterproofing reliability under demanding practical service conditions.

11 Difference Between Conventional PU Waterproof Coatings & ESPLENDIDO FORTRESS HEAVY DUTY PU SYSTEM

11.1 Surface Coating vs Scientific Waterproofing System

Conventional PU waterproof coatings are generally designed as standalone surface-applied waterproof membranes intended primarily to reduce external water ingress.

While such coatings may provide temporary waterproof protection, many systems do not adequately address:

- Internal substrate instability
- Residual moisture activity
- Salt migration beneath coatings
- Weak cementitious zones
- Crack-related moisture pathways

In practical construction conditions, these untreated substrate conditions may eventually contribute to:

- ☁️ Blistering
- 🫧 Bubbling
- 📏 Adhesion loss
- 🏠 Waterproofing debonding
- 🚰 Leakage recurrence

The ESPLENDIDO™ Scientific Multi-Layer Waterproofing System is designed not only as a surface waterproof coating system, but as a coordinated substrate stabilization and waterproof protection system.

The complete system incorporates:

- Internal moisture stabilization
- Crack and weak-zone stabilization
- Reinforced waterproofing base preparation
- Final elastomeric waterproof barrier protection

This scientific waterproofing philosophy helps improve long-term waterproofing reliability under demanding service conditions.

11.2 Conventional PU vs Stabilized Substrate Waterproofing

Conventional PU waterproof coatings are often applied directly over:

- Damp substrates
- Moisture-active surfaces
- Weak screeds
- Untreated cracks
- Unstable cementitious bases

Under such conditions, trapped moisture and vapour activity beneath the coating may eventually result in:

- Blistering
- Membrane lifting
- Adhesion failure
- Premature waterproofing deterioration

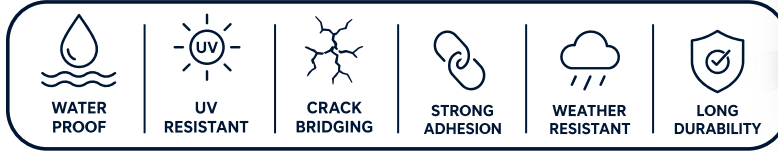
The ESPLENDIDO™ Scientific Multi-Layer Waterproofing System is designed to improve substrate conditions before final PU waterproofing application through:

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Basements & Wet Areas

TECHNICAL DATA SHEET (TDS)



- Internal moisture stabilization using ESPLENDIDO SILANSTOP™
- Crack and weak-zone treatment using ESPLENDIDO CRACK FILLER
- Reinforced waterproofing base preparation using ESPLENDIDO
- SILANSTOP™ AFTER COAT 2K SYSTEM

This coordinated system approach helps create:

- More stable waterproofing substrates
- Improved adhesion conditions
- Reduced moisture-related membrane stress
- Better long-term waterproofing performance

11.3 Moisture Stability & Waterproofing Reliability

Many waterproofing failures originate from:

- Internal capillary moisture movement
- Dampness beneath coatings
- Salt migration activity
- Moisture pressure beneath membranes

Conventional surface-level waterproof coatings may not adequately control these internal substrate conditions.

The: ESPLENDIDO™ Scientific Multi-Layer Waterproofing System addresses both:

Internal substrate stabilization
and
External waterproof protection

through a coordinated waterproofing approach.

This helps improve:

- Waterproofing adhesion stability
- Membrane durability
- Crack resistance
- Resistance to blistering and debonding
- Long-term waterproofing reliability

under practical site exposure conditions.

11.4 Anti-Blistering & Long-Term Durability Advantages

One of the major causes of PU waterproofing failure is:

- Residual moisture beneath coatings
- Internal vapour pressure
- Salt movement within the substrate
- Unstable waterproofing bases

These conditions may eventually lead to:

- Membrane blistering
- Surface bubbling
- Waterproofing debonding
- Reduced waterproofing service life

The: ESPLENDIDO™ Scientific Multi-Layer Waterproofing System is specifically designed to reduce these risks through:

- Moisture stabilization
- Crack stabilization
- Reinforced waterproofing base preparation
- Stabilized waterproofing support conditions

When applied as part of the complete system, ESPLENDIDO FORTRESS HEAVY DUTY PU helps provide:

- Improved waterproofing continuity
- Better membrane adhesion stability
- Reduced risk of coating failure
- Improved environmental durability
- Long-term waterproofing reliability

when compared with conventional surface-only waterproof coating approaches.

12 Recommended Substrates

12.1 Cementitious Substrates

ESPLENDIDO FORTRESS HEAVY DUTY PU is designed for application on properly prepared cementitious construction substrates including:

- Concrete surfaces
- Cement screeds
- Cement plaster
- RCC roof slabs
- Cementitious waterproofing base systems

The substrate should be:

- Structurally sound
- Properly cured
- Stable and crack-repaired
- Free from loose material and contaminants

before waterproofing application.

12.2 Concrete Roofs & Terraces

Suitable for:

- Flat concrete terraces
- Exposed roof slabs
- Residential roof waterproofing
- Commercial terrace waterproofing
- Water ponding-prone roof areas

The elastomeric membrane helps provide:

- Waterproofing continuity
- Crack-bridging protection
- UV and weather resistance
- Long-term exposed waterproofing durability

under outdoor service conditions.

12.3 Balcony & Podium Structures

Recommended for:

- Balconies
- Podiums
- Chajjas
- Walkway slabs
- Exterior horizontal waterproofing areas

Where waterproofing systems are exposed to:

- Rainwater exposure
- Surface moisture accumulation
- Thermal cycling
- Environmental weathering

The elastomeric membrane helps maintain waterproofing continuity under such exposure conditions.

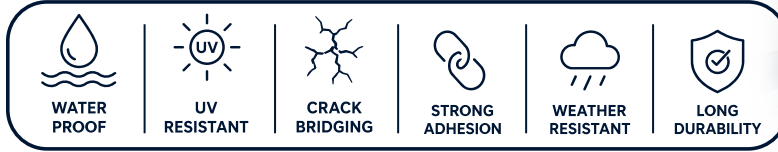
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Basements & Wet Areas

TECHNICAL DATA SHEET (TDS)



12.4 Basement & Below-Grade Structures

Suitable for:

- Positive-side basement waterproofing applications
- Underground exposed concrete surfaces
- Podium basement slabs
- Foundation protection systems
- Positive exposure retaining structures

The system is designed primarily for:

Positive-Side Waterproofing Exposure Conditions

Proper structural waterproofing design and drainage practices should still be maintained for below-grade waterproofing applications.

12.5 Retaining Structures & Foundation Areas

Suitable for:

- Retaining walls (positive exposure side)
- Foundation protection systems
- External concrete retaining structures
- Exposed structural waterproofing zones






The waterproof membrane helps provide:

- Water ingress resistance
- Environmental protection
- Long-term waterproofing continuity

under practical exposure conditions.

12.6 Wet Areas & Utility Zones

Recommended for:

-  Wet areas
-  Utility rooms
-  Service areas
-  Moisture exposure zones
-  Water-contact surfaces

where long-term waterproofing protection is required.

12.7 Exposed Concrete Protection Surfaces

The system is suitable for:

- External concrete protection applications
- Exposed structural concrete surfaces
- Weather-exposed waterproofing areas
- UV-exposed construction surfaces

The membrane helps provide:

- Waterproofing protection
- UV resistance
- Weather resistance
- Anti-carbonation support
- Environmental durability

under exposed outdoor conditions.

12.8 Moisture-Stabilized Substrates

The waterproofing performance of polyurethane membranes improves significantly when applied over:

- Stable substrates
- Crack-repaired surfaces
- Moisture-controlled waterproofing bases
- Reinforced waterproofing systems

For optimum long-term waterproofing performance, application over the: ESPLENDIDO™ Scientific Multi-Layer Waterproofing System is recommended.

The coordinated system includes:

- ESPLENDIDO SILANSTOP™
- ESPLENDIDO CRACK FILLER
- ESPLENDIDO SILANSTOP™ AFTER COAT 2K SYSTEM

before final PU waterproofing application.

12.9 Substrate Condition Requirements

Before application, the substrate should be:

- Properly cured
- Structurally stable
- Free from standing water
- Free from loose particles and contaminants
- Properly repaired and crack-treated

The substrate should not contain:






- Active leakage
- Severe structural movement
- Unstable plaster
- Loose screeds
- Excessively moisture-saturated surfaces

Proper drainage slope should also be maintained to minimize long-term water accumulation stress on the waterproofing system.

13 Recommended Applications

13.1 Terrace Waterproofing

ESPLENDIDO FORTRESS HEAVY DUTY PU is specially designed for exposed terrace waterproofing applications subjected to:

-  Rainwater exposure
-  Water ponding conditions
-  Thermal expansion and contraction
-  UV exposure
-  Environmental weathering

The seamless elastomeric membrane helps provide:

- Long-term waterproof protection
- Crack-bridging continuity
- UV and weather resistance
- Reduced water ingress risk

Durable exposed waterproofing performance

The system is recommended for:

- Residential terraces
- Commercial terraces
- RCC roof slabs
- Large exposed roof areas
- Rehabilitation terrace waterproofing systems

For optimum long-term performance, application as part of the: ESPLENDIDO™ Scientific Multi-Layer Waterproofing System is recommended.

13.2 Roof Slab Waterproofing

Suitable for waterproofing:

- RCC roof slabs
- Concrete roof decks
- Flat roofs
- Sloped roof slabs
- Exposed roof structures

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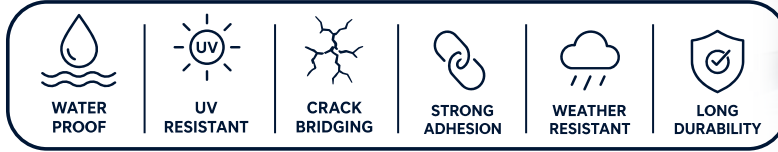
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For Roofs, Terraces, Podiums, Balconies,
Basements & Wet Areas

TECHNICAL DATA SHEET (TDS)



The elastomeric polyurethane membrane helps:

- Maintain waterproofing continuity
- Resist positive-side water exposure
- Reduce rainwater penetration
- Accommodate moderate thermal movement

under practical roof exposure conditions.

13.3 Podium Waterproofing

Recommended for:

- Podium slabs
- Parking podiums
- Intermediate slab waterproofing systems
- Exterior horizontal waterproofing zones

Where waterproofing systems are subjected to:

- Surface moisture accumulation
- Thermal cycling
- Water ponding conditions
- Environmental weather exposure

The seamless membrane helps minimize leakage pathways and improve long-term waterproofing durability.

13.4 Balcony & Chajja Waterproofing

Suitable for:

- Balconies
- Chajjas
- Exterior projections
- Cantilever slabs
- Exterior walkway waterproofing

The elastomeric waterproof membrane helps provide:

- Crack-bridging protection
- Water ingress resistance
- UV and weather resistance
- Durable exposed waterproofing continuity

under outdoor environmental exposure conditions.

13.5 Wet Area Waterproofing

Recommended for:

- Wet areas
- Utility rooms
- Service zones
- Moisture exposure areas
- Water-contact surfaces

where reliable waterproofing protection is required.

The seamless waterproof membrane helps reduce:

- Water seepage risks
- Moisture penetration
- Localized leakage conditions

while maintaining waterproofing continuity.

13.6 Positive-Side Basement Waterproofing

Suitable for:

- Positive-side basement waterproofing applications
- Basement slabs
- Underground exposed concrete surfaces
- Podium basement waterproofing systems

The membrane is designed primarily for: Positive-Side Waterproofing Exposure Conditions and helps provide:

- Water ingress resistance
- Waterproof membrane continuity
- Environmental moisture protection
- Durable waterproofing performance

under practical below-grade exposure conditions.

Proper structural waterproofing design and drainage systems should still be maintained for basement applications.

13.7 Retaining Structure Waterproofing (Positive Exposure Side)

Recommended for:

- Retaining walls
- Positive exposure retaining structures
- External foundation protection systems
- Structural concrete waterproofing zones

The membrane helps reduce:

- Water penetration
- Environmental moisture exposure
- Surface deterioration risks

while improving long-term waterproofing protection.

13.8 Foundation Waterproofing Systems

Suitable for:

- Foundation protection systems
- Exposed foundation waterproofing zones
- Concrete foundation surfaces
- Positive-side foundation waterproofing applications
- The waterproof membrane helps provide:
 - Waterproofing continuity
 - Environmental protection
 - Water ingress resistance
 - Long-term waterproofing durability

under practical site conditions.

13.9 External Concrete Protection Applications

Recommended for:

- Exposed concrete protection systems
- External structural concrete surfaces
- Weather-exposed waterproofing applications
- UV-exposed construction areas
- The system helps provide:
 - Waterproofing protection
 - UV resistance
 - Weather resistance
 - Environmental durability
 - Anti-carbonation support

for exposed concrete structures.

13.10 Industrial & Commercial Waterproofing Applications

Suitable for:

- Industrial waterproofing systems
- Commercial roof waterproofing
- Large exposed waterproofing areas
- Utility waterproofing applications
- Service infrastructure waterproofing zones

where long-term elastomeric waterproofing protection is required.



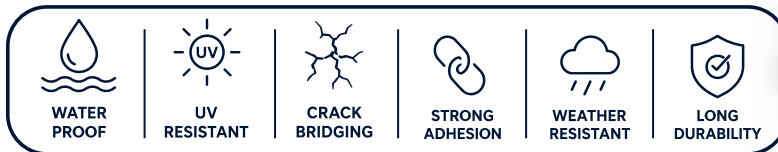
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ADVANCED POLYURETHANE BASED ELASTOMERIC WATERPROOFING SYSTEM

For Roofs, Terraces, Podiums, Balconies,
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13.11 Repair & Maintenance Waterproofing Applications

Recommended for:

- Waterproofing rehabilitation systems
- Leakage repair projects
- Existing roof restoration
- Waterproofing maintenance applications
- Surface waterproofing upgrades
- The elastomeric membrane helps improve:
 - Waterproofing continuity
 - Surface protection
 - Crack resistance
 - Long-term waterproofing durability

when applied over properly prepared and stabilized substrates.

14 Surface Preparation

14.1 General Surface Requirements

Proper surface preparation is essential for achieving:

- Reliable membrane adhesion
- Waterproofing continuity
- Long-term waterproofing durability
- Stable waterproofing performance
- The substrate should be:
 - Structurally sound
 - Properly cured
 - Dry or surface moisture controlled
 - Stable and crack-repaired
 - Free from loose material and contaminants

before waterproofing application.

14.2 Surface Cleaning

The surface must be thoroughly cleaned before application.

Remove:

- Dust and loose particles
- Oil and grease
- Laitance
- Existing unstable coatings
- Dirt and contaminants
- Algae and fungal growth
- Loose plaster and weak screeds

Proper cleaning improves:

- Membrane adhesion
- Waterproofing continuity
- Long-term system durability.

14.3 Existing Coating Removal

All:

- Loose coatings
- Weak waterproofing layers
- Unstable paint films
- Debonded materials
- Poorly adhered treatment layers

must be completely removed before waterproofing application.

The substrate should provide a:

- Stable
- Sound

properly bonded application surface.

14.4 Crack & Joint Preparation

All visible:

- Cracks
- Surface openings
- Weak joints
- Damaged zones
- Leakage-prone areas

should be properly repaired before PU waterproofing application.

For optimum waterproofing performance:

ESPLENDIDO CRACK FILLER
is recommended for:

- Crack stabilization
- Weak-zone treatment
- Surface continuity improvement.

14.5 Surface Repair Requirements

Damaged substrate areas should be repaired before membrane application.

Repair:

- Honeycombs
- Surface voids
- Weak screeds
- Damaged concrete areas
- Loose cementitious zones

before waterproofing application.

Proper substrate stabilization helps improve:

- Adhesion reliability
- Waterproofing continuity
- Long-term membrane durability.

14.6 Moisture-Control Preparation

Polyurethane waterproofing systems perform best when applied over:

- Stable substrates
- Moisture-controlled surfaces
- Properly prepared waterproofing bases
- Excessive substrate moisture may increase risks of:
 - Blistering
 - Adhesion failure
 - Waterproofing debonding

For optimum system performance:

ESPLENDIDO SILANSTOP™
is recommended as the:

- Internal Moisture Stabilization Layer

before final PU waterproofing application.

14.7 Slope & Drainage Requirements

Proper drainage design should always be maintained before waterproofing application.

The substrate should have:

- Proper drainage slope
- Effective water discharge pathways
- Controlled water accumulation zones

to minimize excessive long-term ponding stress on the waterproofing membrane.



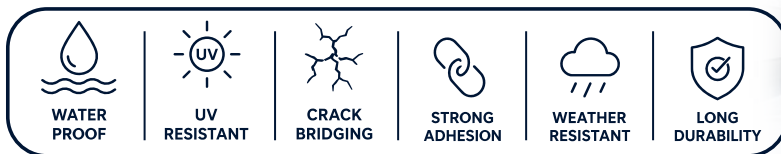
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Basements & Wet Areas

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14.8 Surface Condition Requirements

Before application, the substrate should be:

- Free from standing water
- Free from active leakage
- Free from excessive moisture saturation
- Structurally stable
- Properly repaired and cured
- The substrate should not contain:
 - Loose particles
 - Unstable screeds
 - Weak plaster
 - Excessive surface contamination.

14.9 Primer Compatibility

For highly porous or absorbent substrates, suitable primer systems may be recommended depending upon:

- Surface porosity
- Absorption characteristics
- Substrate condition
- Site exposure conditions

Primer selection should be compatible with the polyurethane waterproofing system.

14.10 Reinforced Base Compatibility

For optimum waterproofing performance: ESPLENDIDO SILANSTOP™ AFTER COAT 2K SYSTEM is recommended as the:

- Reinforced Waterproofing Base Layer before final PU membrane application.

The reinforced waterproofing base helps improve:

- Adhesion stability
- Crack resistance
- Membrane support conditions
- Waterproofing durability
- Long-term system reliability.

15 Application Method

15.1 Application Tools

ESPLENDIDO FORTRESS HEAVY DUTY PU may be applied using:

- Brush
- Roller
- Airless spray equipment

Depending upon:

- Site conditions
- Surface geometry
- Application requirements
- Project scale.

15.2 Material Preparation

The material should be properly mixed before application to achieve uniform consistency.

Before use:

- Open the container carefully
- Stir the material thoroughly using a slow-speed mechanical stirrer or suitable mixing tool
- Ensure uniform consistency before application
- Do not dilute the material with water.

15.3 Stirring Procedure

The material should be stirred slowly and uniformly before application to avoid:

- Air entrapment
- Inconsistent membrane thickness
- Uneven coating performance

Proper mixing helps improve:

- Application uniformity
- Surface finish consistency
- Membrane continuity.

15.4 Primer Application (Where Required)

For porous or highly absorbent substrates, suitable primer systems may be used before waterproofing application.

Primer selection should depend upon:

- Surface condition
- Porosity level
- Absorption characteristics
- Site exposure conditions.

15.5 Application Procedure

Apply the first coat uniformly over the prepared substrate using:

- Brush
- Roller
- Airless spray equipment

Allow the first coat to dry sufficiently before second coat application.

Apply the second coat perpendicular to the first coat direction wherever possible to improve:

- Membrane uniformity
- Waterproofing continuity
- Surface coverage consistency.

15.6 Number of Coats

For standard waterproofing applications:

- Minimum 2-coat application is recommended.
- Additional coats may be required depending upon:
 - Exposure conditions
 - Surface profile
 - Waterproofing requirements
 - Desired membrane thickness.

15.7 Coat Thickness Recommendations

Membrane thickness should be maintained uniformly across the substrate to achieve reliable waterproofing performance.

The final thickness requirement may vary depending upon:

- Application area
- Exposure conditions
- Waterproofing specification
- Site requirements.

15.8 Recoat Interval

Allow sufficient drying time between coats before subsequent application. Typical recoat interval may vary depending upon:

- Temperature
- Humidity
- Surface condition
- Ventilation conditions.

Avoid recoating before the previous coat has adequately dried.



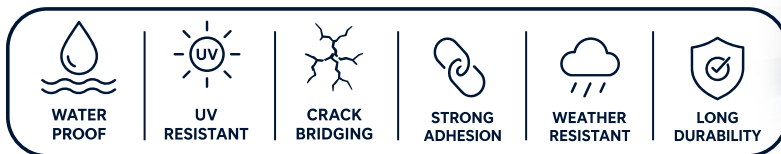
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Basements & Wet Areas

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15.9 Cross-Coat Application Technique

For improved membrane continuity and uniformity:
Apply the second coat perpendicular to the first coat direction wherever practical.

This helps:

- Improve coating distribution
- Reduce localized thin areas
- Improve waterproofing coverage consistency.

15.10 Reinforcement Fabric Integration (Where Required)

For:

- Critical joints
- High movement zones
- Transition areas
- Detailing sections
- Crack-prone locations

Reinforcement fabric integration may be used to improve:

- Crack resistance
- Waterproofing continuity
- Membrane stability.

15.11 Critical Joint & Detailing Areas

- Special attention should be given to:
- Pipe penetrations
- Drain outlets
- Wall-floor junctions
- Construction joints
- Corner transitions

Movement-prone detailing areas
to ensure continuous waterproofing protection.

15.12 Post-Application Protection

Protect the freshly applied waterproof membrane from:

- Rainwater exposure
- Standing water
- Mechanical damage
- Surface contamination

during the initial curing period.

Avoid heavy traffic on the membrane until complete curing has been achieved.

16 Coverage

16.1 Typical Coverage Range

The coverage of ESPLENDIDO FORTRESS HEAVY DUTY PU may vary depending upon:

- Surface porosity
- Surface roughness
- Application thickness
- Substrate absorption characteristics
- Waterproofing system requirements
- Application method and site conditions

For optimum waterproofing performance, uniform membrane thickness should be maintained across the entire application surface.

16 Coverage

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- Surface porosity
- Surface roughness
- Application thickness
- Substrate absorption characteristics
- Waterproofing system requirements
- Application method and site conditions

For optimum waterproofing performance, uniform membrane thickness should be maintained across the entire application surface.

16.2 Single-Coat Coverage

Typical coverage for a single coat application is approximately:

- APPLICATION SYSTEM
- APPROXIMATE COVERAGE
- Single Coat Application
- Approx. 1.0 – 1.2 kg/m²

Actual consumption may vary depending upon:

- Surface profile
- Porosity level
- Surface absorption
- Membrane thickness requirements.

16.3 Two-Coat System Coverage

For standard waterproofing applications, a minimum two-coat system is recommended.

Typical total coverage for a two-coat waterproofing system is approximately:

- APPLICATION SYSTEM
- APPROXIMATE COVERAGE
- Two-Coat Waterproofing System
- Approx. 1.8 – 2.2 kg/m²

Additional coats may be required for:

- High exposure waterproofing zones
- Water ponding areas
- Rehabilitation waterproofing systems
- High-performance waterproofing specifications.

16.4 Coverage Based on Thickness

Coverage consumption is directly influenced by:

- Desired dry film thickness
- Surface condition
- Waterproofing specification requirements
- Substrate texture and absorption

Higher membrane thickness may improve:

- Waterproofing continuity
- Crack-bridging performance
- Water resistance
- Long-term durability

depending upon application requirements and site exposure conditions.



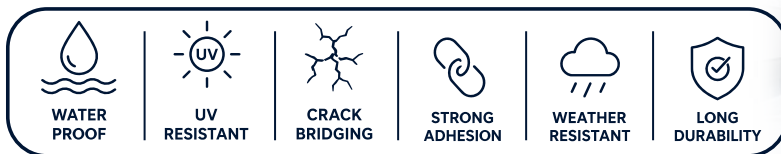
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16.5 Factors Affecting Consumption

Actual material consumption may vary due to:

- Surface roughness
- Surface porosity
- Substrate absorption characteristics
- Surface undulations
- Application technique
- Membrane thickness variation
- Environmental conditions

Highly porous or rough surfaces may require higher material consumption.

16.6 Practical Site Recommendations

For optimum waterproofing performance:

- Uniform membrane thickness should be maintained
- Complete surface coverage should be ensured
- Critical detailing areas should receive special attention
- Proper reinforcement should be used where required

For long-term waterproofing durability, application as part of the: ESPLENDIDO™ Scientific Multi-Layer Waterproofing System is strongly recommended.

17 Drying & Curing Time

Under standard application conditions, the applied membrane typically becomes touch dry within:

4 – 6 Hours

Actual drying time may vary depending upon:

- Ambient temperature
- Humidity
- Surface condition
- Air circulation
- Membrane thickness.

17.2 Recoat Interval

The recommended interval between coats is typically:

6 – 12 Hours

Depending upon:

- Temperature
- Humidity conditions
- Ventilation
- Surface drying behaviour.

Subsequent coats should only be applied after sufficient drying of the previous coat.

17.3 Initial Water Resistance Time

Freshly applied membranes should be protected from:

- Rainwater exposure
- Standing water
- Surface contamination

during the initial curing period.

Initial water exposure protection is recommended for a minimum of:

24 Hours

after application under standard conditions.

17.4 Final Cure Time

Complete curing of the polyurethane membrane typically occurs within:

5 – 7 Days

Depending upon:

- Temperature
- Humidity
- Membrane thickness
- Ventilation conditions.

Full waterproofing performance develops after complete curing.

17.5 Foot Traffic Readiness

Light maintenance foot traffic may be allowed only after sufficient membrane curing has occurred.

Heavy traffic or mechanical loading should be avoided until complete curing is achieved.

Where regular traffic exposure is expected, additional protective systems may be recommended depending upon application requirements.

17.6 Full Service Readiness

The waterproofing system should only be subjected to full service exposure after complete curing has been achieved.

Premature exposure to:

- Water ponding
- Mechanical stress
- Surface loading
- Harsh environmental conditions

before complete curing may affect waterproofing performance.

17.7 Factors Affecting Curing

Curing behaviour may vary depending upon:

- Ambient temperature
- Relative humidity
- Air movement
- Surface moisture conditions
- Membrane thickness
- Ventilation conditions.

Lower temperatures and higher humidity may increase curing time.

17.8 Initial Water Exposure Protection

During the initial curing stage, the membrane should be protected from:

- Rainwater
- Standing water
- Continuous moisture exposure
- Surface contamination

to ensure proper membrane formation and waterproofing continuity.

17.9 Curing Precautions

During curing:

- Avoid mechanical disturbance of the membrane
- Prevent water exposure during early curing
- Avoid contamination of uncured surfaces
- Maintain suitable ventilation during application and curing



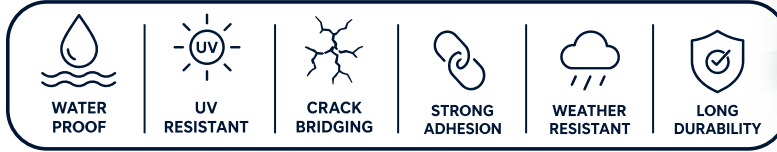
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Basements & Wet Areas

TECHNICAL DATA SHEET (TDS)



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Proper curing is essential for:

- Waterproofing continuity
- Adhesion stability
- Elastomeric membrane performance
- Long-term waterproofing durability.

18 Application Conditions

18.1 Ambient Temperature Conditions

Recommended application temperature range:

10°C to 45°C

Application outside recommended temperature conditions may affect:

- Drying behaviour
- Curing performance
- Membrane formation
- Waterproofing continuity.

18.2 Surface Temperature Conditions

The substrate temperature should be suitable for polyurethane waterproofing application.

Extremely hot or excessively cold surfaces may negatively affect:

- Adhesion performance
- Membrane curing
- Surface finish consistency
- Waterproofing continuity.

18.3 Surface Moisture Conditions

The substrate should be:

- Surface dry or moisture controlled
- Free from standing water
- Free from excessive moisture saturation before waterproofing application.

Application over excessively moisture-saturated substrates may increase risks of:

- Blistering
- Adhesion loss
- Waterproofing debonding.

For improved substrate stability ESPLENDIDO SILANSTOP™ is recommended before PU waterproofing application.

18.4 Weather Conditions

Avoid waterproofing application during:

- Rainfall
- Active water exposure
- Severe weather conditions
- Storm conditions

Application should preferably be carried out under stable environmental conditions.

18.5 Humidity Conditions

As the polyurethane system is moisture-curing, environmental humidity may influence:

- Curing speed
- Surface drying
- Membrane formation behaviour.

Very high humidity or uncontrolled moisture exposure during application may affect surface curing characteristics.

18.6 Ventilation Requirements

Ensure adequate ventilation during:

- Material application
- Drying stage
- Initial curing period.

Proper ventilation helps improve:

- Solvent evaporation
- Uniform curing behaviour
- Membrane formation consistency.

18.7 Environmental Exposure Conditions

The membrane is designed for:

- Outdoor exposure conditions
- UV exposure environments
- Rainwater exposure
- Water ponding exposure
- Long-term environmental weathering conditions.

Proper waterproofing detailing and drainage practices should still be maintained as part of good waterproofing design.

18.8 General Application Precautions

During waterproofing application:

- Maintain uniform membrane thickness
- Avoid contamination during curing
- Ensure complete surface coverage
- Follow recommended recoat intervals

Ensure proper crack and substrate preparation before application.

For optimum performance, application as part of the: ESPLENDIDO™ Scientific Multi-Layer Waterproofing System is recommended.

19 Limitations

19.1 Structural Limitations

ESPLENDIDO FORTRESS HEAVY DUTY PU is designed for waterproofing protection and is not intended to function as:

- Structural repair material
- Structural strengthening system
- Load-bearing repair compound.

Structural defects should be properly repaired before waterproofing application.

19.2 Negative Water Pressure Limitation

The membrane is designed primarily for:

- Positive-Side Waterproofing Exposure Conditions
- The system is not intended as a standalone solution for severe negative-side hydrostatic pressure conditions unless supported by suitable structural waterproofing design.

19.3 Moisture-Saturated Substrate Limitation

Application over:

- Waterlogged substrates
- Excessively moisture-saturated surfaces
- Active leakage zones

may increase the risks of:

- Blistering
- Adhesion loss
- Waterproofing debonding
- Reduced membrane durability.

Proper substrate stabilization and moisture-control preparation should always be carried out before application.



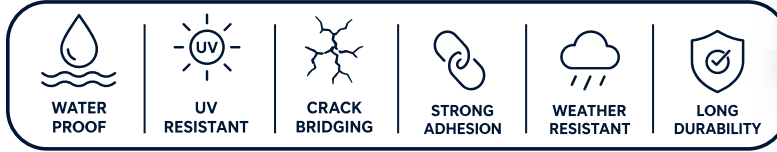
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TECHNICAL DATA SHEET (TDS)



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19.4 Application Limitations

Do not apply:

- During rain
- Under active water exposure conditions
- On contaminated surfaces
- On unstable or weak substrates
- On surfaces containing loose material or standing water.

Proper substrate preparation is essential for waterproofing performance.

19.5 Water Ponding & Drainage Limitations

Although the membrane demonstrates resistance against periodic water ponding, proper:

- Drainage slope
- Water discharge systems
- Surface water management should always be maintained.

Long-term uncontrolled water accumulation due to poor drainage design may negatively affect waterproofing durability over extended service periods.

19.6 Service Exposure Limitations

The membrane should not be exposed to:

- Excessive mechanical abuse
- Sharp impact damage
- Heavy abrasive service conditions
- Continuous industrial chemical attack

unless additional protective systems are incorporated where required.

19.7 Decorative Finish Limitations

The product is designed primarily as a waterproofing membrane and not as a decorative architectural finish coating.

Final appearance may vary depending upon:

- Application method
- Surface condition
- Site exposure conditions
- Membrane thickness.

19.8 System Recommendations

For optimum long-term waterproofing performance:

ESPLENDIDO FORTRESS HEAVY DUTY PU should preferably be used as part of the: ESPLENDIDO™ Scientific Multi-Layer Waterproofing System including:

- ESPLENDIDO SILANSTOP™
- ESPLENDIDO CRACK FILLER
- ESPLENDIDO SILANSTOP™ AFTER COAT 2K SYSTEM

before final PU waterproofing application.

The integrated waterproofing system helps improve:

- Waterproofing continuity
- Adhesion stability
- Crack resistance
- Resistance to blistering and debonding

Long-term waterproofing reliability under practical site conditions.

20 System Benefits

20.1 Waterproofing Benefits

The: ESPLENDIDO™ Scientific Multi-Layer Waterproofing System is designed to provide long-term elastomeric waterproofing protection under demanding construction and environmental exposure conditions. The coordinated waterproofing system helps:

- Reduce water ingress
- Improve waterproofing continuity
- Resist rainwater penetration
- Improve resistance against periodic water ponding

Provide durable exposed waterproofing protection

The seamless elastomeric membrane helps minimize leakage pathways commonly associated with conventional jointed waterproofing systems.

20.2 Crack-Bridging Benefits

The elastomeric polyurethane membrane demonstrates excellent flexibility and crack-bridging performance for minor non-structural substrate movement.

The membrane helps:

- Maintain waterproofing continuity across localized movement areas
- Reduce crack-related leakage risks
- Improve long-term waterproofing stability
- Reduce brittle waterproofing failure

under practical service conditions.

20.3 Terrace Waterproofing Benefits

The system is specially designed for:

- Exposed terrace waterproofing
- Roof slab waterproofing
- Podiums and balconies
- Weather-exposed waterproofing applications

The membrane helps provide:

- UV resistance
- Weather resistance
- Water ponding resistance
- Long-term environmental durability
- Seamless waterproof protection

under outdoor exposure conditions.

20.4 Basement Waterproofing Benefits

Suitable for:

- Positive-side basement waterproofing systems
- Foundation waterproofing applications
- Retaining structures (positive exposure side)
- Underground exposed concrete waterproofing systems

The membrane helps improve:

- Waterproofing continuity
- Water ingress resistance
- Environmental moisture protection
- Long-term waterproofing durability

under practical below-grade exposure conditions.



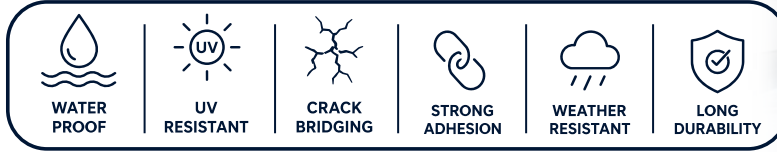
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20.5 Structural Protection Benefits

The waterproof membrane helps protect construction substrates from:

- Water penetration
- Moisture exposure
- Environmental deterioration
- Surface weathering conditions

The system also helps provide:

- Anti-carbonation support
- Environmental surface protection
- Long-term substrate durability benefits

for exposed concrete structures.

20.6 Anti-Blistering Benefits

One of the major causes of PU waterproofing failure is:

- Residual substrate moisture
- Internal vapour pressure beneath coatings
- Salt migration activity
- Unstable waterproofing bases

The ESPLENDIDO™ Scientific Multi-Layer Waterproofing System helps reduce these risks through:

- Internal moisture stabilization
- Crack and weak-zone treatment
- Reinforced waterproofing base preparation
- Improved substrate stability before PU application

This coordinated system approach helps improve:

- Membrane adhesion stability
- Waterproofing continuity
- Resistance to blistering and debonding
- Long-term waterproofing reliability.

20.7 Adhesion & Compatibility Benefits

The system demonstrates excellent compatibility with:

- Cementitious substrates
- Reinforced waterproofing bases
- Concrete surfaces
- Moisture-stabilized waterproofing systems

The coordinated multi-layer waterproofing approach helps improve:

- Adhesion reliability
- Waterproofing support conditions
- Membrane continuity
- Crack resistance performance.

20.8 Durability & Exposure Benefits

The cured membrane demonstrates resistance against:

- UV exposure
- Environmental weathering
- Rainwater exposure
- Surface moisture accumulation
- Wet-dry exposure cycles

The elastomeric membrane structure helps maintain:

- Waterproofing continuity
- Surface flexibility
- Environmental durability
- Long-term waterproofing stability

under practical outdoor exposure conditions.

20.9 Maintenance & Recoating Advantages

The seamless waterproofing membrane helps simplify:

- Waterproofing maintenance
- Surface inspection
- Repair identification
- Future recoating compatibility

when proper waterproofing practices and maintenance schedules are followed.

20.10 Long-Term Waterproofing Reliability Benefits

The ESPLENDIDO™ Scientific Multi-Layer Waterproofing System is engineered to provide a scientifically coordinated waterproofing solution that addresses:

- Internal substrate stability
- Crack and weak-zone stabilization
- Reinforced waterproofing support
- Final elastomeric waterproof protection

This integrated waterproofing philosophy helps improve:

- Waterproofing durability
- Adhesion stability
- Crack resistance
- Resistance to blistering and debonding
- Long-term waterproofing reliability under demanding practical site conditions.

21 Storage & Shelf Life

21.1 Storage Conditions

Store ESPLENDIDO FORTRESS HEAVY DUTY PU in:

- Original unopened containers
- Cool and dry conditions
- Properly ventilated storage areas away from:

- ☀ Direct sunlight
- 🔥 Excessive heat exposure
- 💧 Moisture contamination
- 🌧 Rainwater exposure.

21.2 Recommended Storage Temperature

Recommended storage temperature range:

🌡 5°C to 35°C

Excessive temperature exposure may affect:

- Material consistency
- Shelf life stability
- Application behaviour.

21.3 Packaging Protection

Containers should remain:

- Properly sealed
- Upright during storage
- Protected from physical damage
- Protected from moisture ingress

until application.

21.4 Moisture Protection Requirements

As the material is moisture-curing, exposure to uncontrolled atmospheric moisture during storage may affect product stability.

Partially used containers should be:

- Resealed immediately after use
- Protected from air and moisture exposure
- Used within practical handling periods.



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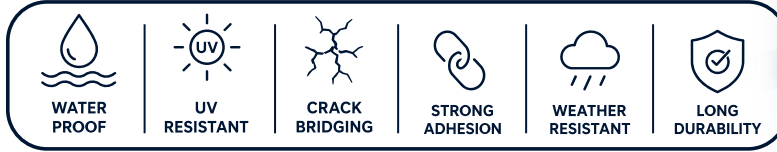
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21.5 Handling Practices

During storage and handling:

- Avoid rough handling
- Prevent puncture or container damage
- Avoid contamination of the material
- Maintain proper warehouse ventilation.

21.6 Shelf Life

Shelf life: 12 Months from the date of manufacture when stored under recommended unopened storage conditions.

22 Safety Information

22.1 General Safety Precautions

During application and handling:

- Avoid unnecessary skin contact
- Avoid inhalation of vapours during prolonged exposure
- Maintain proper ventilation during application and curing.

Use the product in accordance with good industrial and construction safety practices.

22.2 Personal Protective Equipment (PPE)

Recommended protective equipment:

- Safety gloves
- Protective eyewear
- Suitable work clothing
- Respiratory protection where ventilation is insufficient.

22.3 Ventilation Requirements

Ensure adequate ventilation during:

- Material handling
- Waterproofing application
- Drying and curing stages

particularly in enclosed or low-ventilation environments.

22.4 First Aid Measures

In case of:

Eye contact: Rinse immediately with clean water and seek medical attention if irritation persists

Skin contact: Wash thoroughly with soap and water

Inhalation discomfort: Move to fresh air

Accidental ingestion: seek medical attention immediately.

22.5 Fire & Handling Precautions

Keep away from:

- Open flames
- Excessive heat sources
- Ignition sources

during storage and application.

Do not smoke during application or material handling.

22.6 General Safety Note

Always follow:

- Local safety regulations
- Industrial handling practices
- Construction site safety requirements

during storage, handling, and application of the waterproofing system.

23 Environmental Considerations

23.1 Environmental Precautions

Avoid uncontrolled release of material into:

- Soil
- Water systems
- Drainage channels
- Natural water bodies.

Use responsible handling and disposal practices during application and cleaning operations.

23.2 Spill Management

In case of accidental spillage:

- Contain the material immediately
- Prevent spread into drainage systems
- Collect using suitable absorbent material
- Dispose according to local environmental regulations.

23.3 Disposal Recommendations

Dispose:

- Empty containers
- Unused material
- Contaminated cleaning materials

in accordance with applicable local environmental and waste disposal regulations.

23.4 Responsible Product Usage

Proper application, storage, handling, and disposal practices help reduce:

- Environmental contamination risks
- Material wastage
- Site pollution risks

while improving safe waterproofing operations.

24 Packaging

24.1 Available Pack Sizes

Available standard packaging sizes



5Kg



10Kg



20Kg

Additional packaging sizes may be available depending upon project requirements and regional supply conditions.

24.2 Packaging Configuration

The product is supplied in:

- Industrial-grade sealed containers
- Moisture-protected packaging systems
- Waterproofing-grade storage containers

designed for safe handling and transportation.

24.3 Packaging Protection Features

The packaging system is designed to help:

- Reduce moisture contamination
- Protect material integrity
- Maintain storage stability
- Improve handling safety during transportation and storage.

24.4 Packaging Notes

Containers should remain:

- Properly sealed after use
- Protected from direct sunlight
- Stored in dry conditions
- Handled carefully to avoid damage.



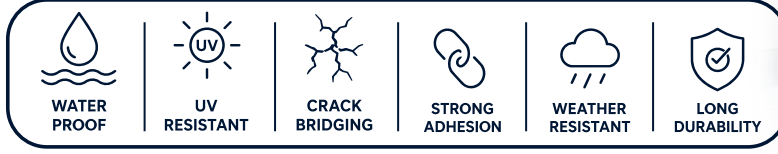
RIYA STONE
SPECIALITY CHEMICALS

ESPLENDIDO FORTRESS HEAVY DUTY PU

ADVANCED POLYURETHANE BASED ELASTOMERIC WATERPROOFING SYSTEM

For Roofs, Terraces, Podiums, Balconies,
Basements & Wet Areas

TECHNICAL DATA SHEET (TDS)



TDS
ESPLENDIDO FORTRESS
HEAVY DUTY PU



25 Disclaimer & Warranty

25.1 Disclaimer

The information contained in this Technical Data Sheet is based on laboratory evaluations, practical application experience, and current technical knowledge available at the time of publication.

As:

- Site conditions
- Substrate conditions
- Environmental exposure
- Workmanship quality
- Application methods

are beyond the control of the manufacturer, no guarantee can be provided regarding actual site performance under all conditions.

Users are advised to:

- Evaluate product suitability before large-scale application
- Follow recommended application procedures
- Conduct practical site trials wherever necessary.

25.2 Warranty Statement

The manufacturer warrants that the product supplied is manufactured under quality-controlled production conditions and conforms to internal manufacturing specifications at the time of supply.

The warranty is limited to replacement of defective material where proven manufacturing defects exist.

- No warranty is provided for:
- Improper application
- Inadequate surface preparation
- Structural defects
- Incorrect waterproofing design
- Site workmanship issues
- Conditions beyond manufacturer control.

25.3 Technical Recommendation Notice

For optimum waterproofing performance and long-term durability: ESPLENDIDO FORTRESS HEAVY DUTY PU is strongly recommended as part of the: ESPLENDIDO™ Scientific Multi-Layer Waterproofing System including:

- ESPLENDIDO SILANSTOP™
- ESPLENDIDO CRACK FILLER
- ESPLENDIDO SILANSTOP™ AFTER COAT 2K SYSTEM

before final PU waterproofing application.

The integrated waterproofing approach helps improve:

- Waterproofing continuity
- Adhesion stability
- Crack resistance
- Resistance to blistering and debonding

Long-term waterproofing reliability under practical service conditions.



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