FORZAFLEX MINERALE 4.5.



Technical Data Sheet | **Torch-Applied APP-Modified Bitumen Mineral Cap Sheet — UV Exposed** | **Issue date: 12 November 2026**

Description

FORZAFLEX MINERALE 4.5 is an APP-modified bitumen cap sheet engineered as the final, permanently exposed layer of a multi-layer torch-applied waterproofing system. The upper face is factory-finished with mineral slate granules embedded into the bitumen while it is still molten; the underside carries a thermofusible polyethylene film that melts under the torch and fuses the sheet to the base ply beneath.

The mineral surface is the durability mechanism, not a decorative finish. Ultraviolet radiation degrades bitumen by breaking the binder down at the surface, and the slate layer intercepts it before it reaches the bitumen at all — which is why the sheet can be left in the weather where an unsurfaced membrane would embrittle and craze. A granule-free selvedge is left along one edge so the side lap fuses bitumen to bitumen rather than through the surfacing. Beneath the granules, a high-strength non-woven polyester composite carries tensile load, resists puncture and holds the sheet dimensionally stable through thermal cycling.

Advantages

- Classified CLASS I under AS 4654.1-2012 through NATA-accredited testing.
- Mineral slate surfacing provides permanent UV protection — no topcoat, coating or ballast required.
- Certified ultraviolet durability — extensibility retained through UV exposure.
- Certified through water immersion, detergent immersion and heat ageing.
- Cyclic movement passed — 50 cycles with no rupture, crazing or tearing.
- Certified dimensional stability — no change through two full humidity and temperature cycles.
- High certified field seam strength.
- Very low certified water vapour transmission.
- Fully torch-bonded to the base ply — no loose-laid layer and no lateral water path between plies.
- Immediate watertightness — the sheet is sealed as it is rolled, with no cure period.
- Granule-free selvedge at side laps for clean, verifiable fusion.
- The finished surface on completion — the roof is complete when the cap sheet is down.

Uses and Approved Basis

- Exposed roof waterproofing as the final layer of a torch-applied system.
- Balconies and terraces where the membrane remains the finished surface.
- Podium slabs and plaza decks.
- Retaining walls, exposed or protected.
- Above-ground waterproofing where UV resistance is required.
- Plant decks and roof areas subject to maintenance access only.
- Re-covering and remedial work over sound existing torch-applied systems, subject to assessment.

Approved basis: classified CLASS I under AS 4654.1-2012 by NATA-accredited Report No. 596-1, installed as the cap sheet of a multi-layer torch-applied system designed in accordance with AS 4654.2-2012. Certified abrasion results qualify the membrane for MAINTENANCE ACCESS ONLY — it is not a trafficable membrane. Where pedestrian or vehicle traffic is required, a separate trafficable wearing surface must be designed over the membrane.

System Components

FORZAFLEX MINERALE 4.5 is the cap sheet of a multi-layer torch-applied waterproofing system. Approved system components:

- FORZAFLEX BASE 3mm — the base or intermediate ply beneath the cap sheet.

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System Components (continued)

- FORZAPRIME — bitumen primer for concrete, masonry and metal substrates, where the cap sheet is applied direct to the substrate rather than over a base ply.
- FORZAFLEX RR — root-resistant cap sheet, substituted for MINERALE 4.5 in planter boxes, green roofs and landscaped areas.
- Non-combustible overlay board — mandatory where the substrate is combustible; torch application direct to combustible substrates is prohibited.
- Concrete reinstatement — FORSPEC concrete repair system such as FORBUILD 100 or FORCRETE 100.
- Protection — FORSPEC-approved drainage cell and filter fabric, or protection board, where the membrane is covered in ballasted or below-fill areas.

The final system configuration must be designed to suit project exposure, traffic and protection requirements. Use only the components above, applied per their current TDS, to maintain system compliance and warranty eligibility. Substitution of non-FORSPEC components voids system warranty eligibility.

Standards Compliance

STANDARD	TITLE	RESULT	EVIDENCE
AS 4654.1-2012	Waterproofing membranes for external above-ground use — Part 1: Materials	CLASS I (low extensibility) — all durability criteria including ultraviolet exposure: pass	Report No. 596-1 — NATA-accredited to ISO/IEC 17025
AS 4654.1 Appendix B	Resistance to cyclic movement (CSIRO moving joint test)	PASS — 50 cycles completed, no rupture, crazing or tears	Report No. 596-1
AS 4654.2-2012	Waterproofing membranes for external above-ground use — Part 2: Design and installation	Systems to be designed and installed in accordance with this standard (NCC Deemed-to-Satisfy)	—
AS 1580.403.2 — abrasion, non-trafficable	Depth of abrasion, CS-10 wheel, 500 cycles	0.045 mm — meets the requirement for a non-trafficable membrane (limit 0.2 mm)	Report No. 596-1, per AS 4654.1 Paragraph 2.3.1
AS 1580.403.2 — abrasion, trafficable	Depth of abrasion, H-22 wheel, 1000 cycles	0.509 mm — DOES NOT meet the requirements for a trafficable membrane (pedestrian limit 0.2 mm). Maintenance access only.	Report No. 596-1, per AS 4654.1 Paragraph 2.3.2
ASTM D6207	Dimensional stability to changes in humidity and temperature	No changes observed over two full cycles	Report No. 596-1
ASTM E96	Water vapour transmission, desiccant method	0.02 g/m²/24 h	Report No. 596-1

National Construction Code: for external above-ground waterproofing — flat roofs, terraces, balconies and podiums above internal spaces — AS 4654.1 and AS 4654.2 apply under NCC Volume One Part F1 and NCC Volume Two Clause H2D8. The designer is responsible for confirming the compliance pathway applicable to the project.

Approved Substrates

SUBSTRATE	REQUIREMENT
Concrete	Fully cured, minimum 28 days. Concrete Surface Profile 3–6. Dry, sound and free of laitance, curing compounds and contaminants. Blowholes and defects repaired. Primed with FORZAPRIME.
Cement render and screed	Fully cured, sound and non-friable. Dry at the time of priming. Primed with FORZAPRIME.
Masonry and blockwork	Sound, joints struck flush and made good. Primed with FORZAPRIME.
Metal	Rigid, clean, free of oil, oxide and mill scale. All laps and fixings secure. Primed before membrane installation.

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Approved Substrates (continued)

SUBSTRATE	REQUIREMENT
Timber and combustible substrates	Torch application direct to a combustible substrate is PROHIBITED. A suitable non-combustible overlay board must be installed first.
Existing bituminous membranes	Only where sound, well adhered and compatible, and only with written FORSPEC approval following a site assessment.
Damp, green or uncured concrete	NOT APPROVED. Moisture content must be acceptable for torch application — trapped moisture will vaporise under the torch and blister the membrane.
Substrates with inadequate falls	NOT APPROVED. Minimum 1:100 to drainage outlets with no ponding.

Commencement of installation constitutes acceptance of the substrate by the applicator.

Technical Data

PROPERTY	VALUE	TEST METHOD / BASIS
Product type	APP-modified bitumen torch-applied mineral cap sheet	—
Reinforcement	High-strength non-woven polyester composite	—
Upper surface	Mineral slate granules, with a granule-free selvedge at side laps	—
Lower surface	Thermofusible polyethylene film	—
Membrane classification	CLASS I (low extensibility)	AS 4654.1 — Report 596-1
Control elongation at break	40%	AS 1145.3 — Report 596-1
Control tensile strength	1.94 MPa	AS 1145.3 — Report 596-1
Cyclic movement	Pass — 50 cycles, no rupture, crazing or tears	AS 4654.1 App. B — Report 596-1
Abrasion — non-trafficable	0.045 mm depth of abrasion (CS-10 wheel, 500 cycles)	AS 1580.403.2 — Report 596-1
Abrasion — trafficable	0.509 mm — does not meet trafficable requirements. Maintenance access only.	AS 1580.403.2 — Report 596-1
Field seam strength	279.20 N/25 mm	AMTM005 — Report 596-1
Dimensional stability	No changes observed	ASTM D6207 — Report 596-1
Water vapour transmission	0.02 g/m²/24 h	ASTM E96 desiccant method — Report 596-1
Temperature resistance	0.16 g/m²/24 h after cycling from −16.3°C to 85°C	AMTM004 — Report 596-1
Nominal thickness	4.0 mm	FORSPEC R&D to EN 1849-1 *
Mass per unit area	4.5 kg/m²	FORSPEC R&D to EN 1849-1 *
Roll size	10 m × 1 m — 10 m² gross per roll	—
Approximate roll weight	45 kg	*
Rolls per pallet	20	*

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Technical Data (continued)

PROPERTY	VALUE	TEST METHOD / BASIS
Service temperature range	−15°C to +85°C	Report 596-1 conditioning range
UV exposure	Permanently exposed — mineral surface provides UV protection	Report 596-1
Application method	Torch-applied heat welding by propane gas torch or approved torching equipment	—
Application temperature	5°C to 40°C ambient. Do not torch in rain, on wet substrates or in high wind.	*
Minimum side lap	75 mm at the granule-free selvedge	—
Minimum end lap	150 mm	—
End lap stagger	Minimum 1 m between adjacent sheets	—
Minimum upturn height	150 mm unless specified otherwise	—
Minimum substrate fall	1:100, draining positively to outlets	—
Shelf life	24 months from manufacture, stored as specified	*
SDS	Refer to the current FORZAFLEX MINERALE 4.5 Safety Data Sheet at www.forspec.com.au	—

Certified durability test results — Report 596-1, AS 4654.1 Appendix A

CONDITION	ELONGATION AT BREAK	TENSILE STRENGTH	PASS REQUIREMENT	ASSESSMENT
Control (AS 1145.3)	40%	1.94 MPa	< 60% for Class I	CLASS I
Water immersion (56 days)	41%	2.04 MPa	≥ 10% (25% of control)	PASS
Detergent immersion (56 days)	35%	1.74 MPa	≥ 10% (25% of control)	PASS
Heat ageing	29%	1.90 MPa	≥ 20% (50% of control)	PASS
Ultraviolet exposure	25%	1.51 MPa	≥ 16% (40% of control)	PASS

Values citing Report 596-1 are certified results from NATA-accredited testing to ISO/IEC 17025. * Typical characteristic values determined by Forspec R&D on standard production material at 25°C and 50% relative humidity — not to be relied upon for engineering design without written confirmation from FORSPEC Technical Services.

Limitations

- NOT A TRAFFICABLE MEMBRANE. Certified abrasion depth is 0.509 mm against a 0.2 mm pedestrian limit. The membrane is suitable for MAINTENANCE ACCESS ONLY. Where pedestrian or vehicle traffic is required, design a separate trafficable wearing surface over the membrane.
- Classified CLASS I (low extensibility). Where the design requires a Class II or Class III membrane for movement accommodation, specify a higher-class FORSPEC membrane or design the movement detail accordingly.
- Do not coat, paint or cover the mineral surface unless specified by the system design. Coating over the granules defeats the UV protection mechanism and can trap moisture beneath the coating.
- Torch application direct to combustible substrates is PROHIBITED. A non-combustible overlay board must be installed first.
- Torch-applied work is hot work. It must not proceed without a hot work permit, a fire watch and the fire safety measures set out in Hot Works and Fire Safety below.
- Do not torch onto wet, damp, green or uncured substrates. Trapped moisture vaporises under the torch and blisters the membrane.
- Do not torch onto wet or uncured primer. The primer must be tack-free and must not transfer to fingers.
- Do not overheat. Excessive heat degrades the bitumen, damages the polyester reinforcement and displaces the mineral granules.

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Limitations (continued)

- Insufficient heat produces a cold bond that looks acceptable and is not adhered. Correct bitumen bleed-out is the only reliable field confirmation of fusion.
- No cold joints, fish-mouths or open seams are permitted at any lap.
- Avoid excessive foot traffic during installation. Granules displaced by traffic leave the bitumen locally exposed to UV.
- Not compatible in direct contact with polystyrene insulation, PVC membranes or plasticised sheet materials without an approved separation layer.
- Bitumen fume is classified as a suspected carcinogen. Torch application generates fume and must be carried out with the controls set out in Safety Precautions and First Aid.
- Application must be carried out by trained and experienced waterproofing applicators using approved torch-applied membrane techniques.

Surface Preparation

Correct application is critical to system performance, and it begins with the substrate. Poor surface preparation will result in adhesion failure and voids the warranty.

- Substrate acceptance — confirm the substrate is structurally sound, rigid and fully cured. Commencement of installation constitutes acceptance of the substrate by the applicator.
- Cleaning — remove all dust, laitance, curing compounds, oils, grease and loose material by mechanical means and vacuum clean.
- Repairs — repair cracks, voids, blowholes and honeycombing with a compatible repair material, such as FORBUILD 100 or FORCRETE 100, and allow to cure fully.
- Protrusions — grind off sharp edges, fins and protrusions that would damage the membrane from beneath.
- Surface profile — concrete must present a Concrete Surface Profile between 3 and 6.
- Falls — verify a minimum fall of 1:100 toward drainage outlets before any membrane is laid. Ponding is not a design condition.
- Moisture — the substrate must be dry and free of surface moisture prior to priming. Moisture content must be acceptable for torch application; trapped moisture will vaporise under the torch and blister the membrane.
- Combustible substrates — install a suitable non-combustible overlay board. Torch application direct to combustible substrates is prohibited.
- Final check — confirm the substrate is dry immediately before priming, and again immediately before torching.

Priming

- Apply FORZAPRIME bitumen primer to all concrete, masonry and metal substrates.
- Apply evenly by roller, brush or spray at the coverage rate stated in the FORZAPRIME TDS.
- Achieve complete, even coverage with no misses and no pooling. An unprimed patch is an unbonded patch.
- Allow the primer to dry fully before the membrane is applied. The primer must be tack-free and must not transfer to fingers.
- Do not torch the membrane onto wet or uncured primer — solvent trapped beneath a torched ply will blister.
- Re-prime any area that has been rained on, walked over or contaminated after priming.

Membrane Layout and Laps

- Install starting from the lowest point of the area, so every lap sheds water rather than facing into the flow.
- Lay sheets perpendicular to the direction of fall.
- Pre-cut and dry-lay sheets to confirm alignment and detailing before any torching begins.
- Side laps: minimum 75 mm, formed at the granule-free selvedge so the lap fuses bitumen to bitumen.
- End laps: minimum 150 mm.
- Stagger end laps between adjacent sheets by a minimum of 1 metre. Never align end laps across the run to create a cross joint.
- Offset the cap sheet laps from the base ply laps beneath — never stack a cap lap directly over a base lap.
- Set out so no lap falls in a valley, gutter sole or ponding zone where practicable.
- Allow rolls to relax before torching. A sheet welded under tension will stress the laps as it recovers.

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Torch Application

The weld is the waterproofing. A ply that looks laid and is not fused is a defect that will not appear until the system is in service.

STAGE	REQUIREMENT	CHECK
Equipment	Propane gas torch or approved torching equipment, serviced and leak-tested before use.	Hoses and fittings checked
Heating	Heat the underside polyethylene film evenly until the bitumen reaches a molten state. Keep the flame moving; never dwell in one place.	Film fully molten, no scorching
Rolling	Roll the membrane forward steadily while maintaining consistent heat, keeping the roll square to the run.	Steady, even advance
Bleed-out ahead of the roll	A continuous molten bitumen flow of approximately 6–12 mm must be visible ahead of the roll. This is the working confirmation of fusion.	6–12 mm molten flow visible
Adhesion	Ensure full fusion to the primed substrate or underlying ply across the full sheet width, not only at the laps.	No hollow or drummy areas
Side laps	Fuse at the granule-free selvedge. Bitumen bleed-out of 3–6 mm must be visible along the full lap.	3–6 mm bleed at all side laps
End laps	Heat and embed the mineral granules into the bitumen, or remove the excess surfacing, so the lap fuses bitumen to bitumen. Granules left loose in an end lap prevent fusion.	Granules embedded or removed
Overheating	Do not overheat. Excessive heat degrades the bitumen, damages the polyester reinforcement and displaces the mineral granules.	No blistering, scorch or granule loss
Cold bonds	Insufficient heat produces a bond that appears sound and is not adhered. Where bleed-out was not achieved, cut out and reinstate.	Bleed-out achieved at every metre
Seams	No cold joints, fish-mouths or open seams are permitted. Reheat and roll down any lifted edge immediately.	All seams closed and sealed

Joints and Detailing

- Upturns — carry the membrane a minimum of 150 mm up every upstand and parapet unless a greater height is specified.
- Internal and external corners — reinforce every corner with an additional torched detailing piece before the field sheets are run in.
- Penetrations — fully dress and seal every penetration with compatible detailing membrane, torched and rolled down to the penetration.
- Terminations — mechanically fix and seal where required. Never leave a free membrane edge unsealed.
- Movement joints — detail separately with a compatible expansion detail. Never torch the membrane flat across a movement joint.
- Drainage outlets — dress the membrane down into the outlet body so water enters the drain and not the lap.
- Complete all detailing before the field membrane is covered, and inspect every detail before the cap sheet is run.

Seam Inspection and Quality Control

- Inspect every lap along its full length once cool. Bitumen bleed-out of 3–6 mm must be continuous — a lap without bleed-out has not fused.
- Probe all lap edges with a blunt seam probe. The probe must not enter the lap at any point.
- Inspect the full membrane area for blisters, fish-mouths, wrinkles, scorching, punctures and mechanical damage.
- Sound the membrane for hollow and drummy areas indicating incomplete adhesion to the substrate.
- Cut out and reinstate any defective lap or damaged area with a torched patch lapped a minimum of 150 mm on all sides, and re-inspect the repair.
- Confirm the mineral granules were embedded or removed at every end lap.
- Make good any area of granule loss so no bitumen is left locally exposed to ultraviolet radiation.
- Confirm every upturn, corner, penetration and termination is fused and sealed.

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Seam Inspection and Quality Control (continued)

- Record the inspection and all repairs on the project quality records before the cap sheet or protection is placed.

Coverage and Yield

MEASURE	VALUE	BASIS
Roll size	10 m × 1 m	—
Gross area per roll	10 m^2	10 m × 1 m
Effective width at 75 mm side lap	0.925 m	1.000 m − 0.075 m
Effective length at 150 mm end lap	9.85 m	10.00 m − 0.15 m
Effective area per roll	Approx. 9.1 m^2	0.925 m × 9.85 m
Rolls per 100 m^2	Approx. 11	100 m^2 ÷ 9.1 m^2
Rolls per pallet	20 — approx. 182 m^2 effective	20 × 9.1 m^2

Effective area accounts for minimum side and end laps only. Upturns, corner reinforcement, detailing pieces, penetration collars and cutting waste all consume additional material. Allow a minimum of 10% over the effective area for a simple rectangular roof, and substantially more on cut-up areas with numerous penetrations and upstands. Where the system requires a FORZAFLEX BASE 3mm ply beneath, allow the same quantity again for the base ply.

Drying, Curing and Testing Times

FORZAFLEX MINERALE 4.5 is torch-bonded and seals as it is rolled — there is no cure period. The times below are the working sequence at 25°C and 50% RH.

STAGE (AT 25°C, 50% RH)	TIME
Bond development	Immediate — the ply is sealed as it is rolled
Cooling before seam probing	Approx. 30 minutes, or until the membrane is cool to the touch
Cooling before maintenance foot traffic	Approx. 30 minutes; the membrane is soft and granules are easily displaced while warm
Flood testing	After all laps and detailing are complete and inspected
Return to service	After a successful flood test

In hot weather the membrane remains soft for substantially longer and granules are easily displaced by foot traffic. In cold weather the sheet is stiff and requires more heat to achieve bleed-out — increase heat input rather than slowing the roll to a stop.

Flood Testing

Flood test after all laps and detailing are complete and inspected, and before the area is returned to service.

Plug all drains and outlets and install temporary barriers to contain the water. Flood to a minimum depth of 50 mm at the highest point of the membrane and retain the water for 24 hours, inspecting the underside, perimeter and any adjacent occupied space for leakage throughout. On completion, release the water, remove plugs and allow the surface to dry before covering.

Where the area cannot be flooded, test by controlled hose flooding at the design flow for a minimum of 30 minutes at each detail, working from the lowest point upwards with the underside under observation. Rectify any defect by torched patch repair, re-inspect and re-test before proceeding. Conduct testing in accordance with the project specification and AS 4654.2.

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Exposed Service and Maintenance

- **The finished surface**
  The mineral surface provides permanent UV protection and is the completed waterproofing surface. Do not coat, paint or cover the mineral surface unless specified by the system design — coating over the granules defeats the UV protection mechanism and can trap moisture beneath the coating.
- **Traffic**
  Certified abrasion results qualify the membrane for MAINTENANCE ACCESS ONLY. It is not a trafficable membrane. Provide dedicated walkway protection to all plant, access and maintenance routes, and design a separate trafficable wearing surface wherever pedestrian or vehicle traffic is required.
- **Protection from following trades**
  Protect the completed membrane from traffic, dropped tools, scaffold feet, plant and further hot works until handover. Damage caused by following trades is the most common cause of failure on a completed torch-applied system.
- **Inspection and maintenance**
  Inspect annually and after severe weather. Clear gutters, outlets and rainheads of debris. Inspect all laps, upturns, penetrations and terminations for lifting, blistering or damage, and inspect the field for granule loss. Make good any area of granule loss so no bitumen is left locally exposed. Repair by torched patch, lapped a minimum of 150 mm on all sides onto sound existing membrane.

Hot Works and Fire Safety

Torch application is hot work. On a construction site it is one of the highest fire-risk activities carried out, and the risk continues after the torch is extinguished.

- Obtain a hot work permit from the principal contractor before any torch is lit, and comply with every condition of that permit.
- Survey the work area before starting. Identify combustible materials, cavities, service penetrations, insulation, cable trays and voids where flame or heat can travel out of sight.
- Remove combustible materials from the work area, or protect them with non-combustible screens where removal is not practicable.
- Never torch direct to a combustible substrate. Install a non-combustible overlay board first.
- Maintain a serviceable fire extinguisher and a charged hose at the work face at all times.
- Post a dedicated fire watch during the works and maintain it for a minimum of 60 minutes after the last torch is extinguished, or longer if the permit requires. Smouldering ignition in a concealed cavity commonly develops well after work stops.
- Inspect the area, including the underside and any adjacent voids, before leaving site.
- Shut off and isolate gas cylinders when not in use. Store cylinders upright, secured and in a ventilated area away from the work face.
- Leak-test all hoses, regulators and fittings before use and inspect them daily.
- Do not carry a lit torch between work areas.
- Do not torch near sprinkler heads, smoke detectors or fire dampers without first isolating them through the principal contractor and reinstating them on completion.

Clean Up

Remove offcuts, packaging, core tubes and loose granules from the work area as the work proceeds. Loose granules underfoot are a slip hazard on a completed roof. Bituminous offcuts left on a warm roof adhere to the membrane and are difficult to remove without damage.

Clean bitumen from tools and equipment with a bitumen-compatible solvent permitted by the Safety Data Sheet, handled in accordance with the Work Health and Safety Regulations, with ignition sources controlled. Cured bitumen on adjacent finished surfaces can generally only be removed mechanically or with solvent that may itself damage the finish — mask and protect adjacent surfaces before starting rather than cleaning afterwards.

Do not allow solvent, bitumen residue or wash water to enter sewers, stormwater systems or waterways. Manage and dispose of all washings in accordance with the relevant State or Territory environment protection legislation and local council requirements.

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Container and Waste Disposal

Membrane offcuts, core tubes and packaging are disposed of as construction waste in accordance with local council regulations. Do not burn bituminous offcuts or packaging under any circumstances — combustion generates dense toxic smoke and bitumen fume.

Dispose of solvent residues, contaminated rags and empty primer containers in accordance with those products' Safety Data Sheets, the WHS Regulations, the relevant State or Territory EPA requirements and local council regulations. Solvent-contaminated rags present a fire risk and must be stored in a sealed metal container pending disposal. Empty gas cylinders are returned to the supplier. Never discharge to sewer, stormwater, soil or waterways.

Quality Records

Record and retain the following as part of the project quality assurance records and as a condition of warranty eligibility:

- Batch numbers and roll numbers of all FORZAFLEX MINERALE 4.5 installed, and of the base ply, primer and ancillary components used.
- Substrate type, preparation method, Concrete Surface Profile achieved, and photographic evidence of the accepted substrate.
- Substrate falls verified before laying, and confirmation of positive drainage to outlets.
- Substrate moisture confirmation before priming and before torching.
- Primer applied, coverage rate achieved, date and time primed, and confirmation the primer was tack-free before torching.
- Membrane layout record showing sheet direction, lap positions, lap widths and end lap stagger as installed.
- Confirmation that continuous bitumen bleed-out was achieved ahead of the roll and along every lap.
- Seam inspection records covering the full length of every lap, and details of every defect cut out and reinstated.
- Detail register — every upturn, corner, penetration, outlet and termination, with confirmation of the detailing method used.
- Hot work permit references, fire watch records and confirmation of the post-work fire watch period observed.
- Flood test date, method, duration, result and any rectification carried out and re-tested.
- Name and licence details of the applicator, torch operator competency records, and sign-off of each hold point.

Storage

Store rolls upright on end, on pallets, on a clean flat surface. Do not stack rolls horizontally and do not stack pallets — a bituminous roll stored on its side will flatten, take a permanent set, may block together in warm conditions, and granules on the surface will emboss the sheet beneath.

Protect from direct sunlight, rain and weather. If stored outdoors, cover with opaque waterproof sheeting; clear sheeting concentrates heat and can soften or block the rolls. Store away from ignition sources, heat and oxidising agents. In hot conditions store under cover and away from the sun in every case.

Shelf life is 24 months from manufacture when stored as specified. Store away from food, drink and animal feedstuffs, and stock rotate on a first-in, first-out basis.

Safety Precautions and First Aid

FORZAFLEX MINERALE 4.5 is classified per its current Safety Data Sheet. Read the Safety Data Sheet in full before use — it is available at www.forspec.com.au and governs in the event of any inconsistency with this document. This product is classified as a HAZARDOUS CHEMICAL and NON-DANGEROUS GOODS under the WHS Regulations and the ADG Code, signal word DANGER. Chemwatch 9024-63. Hazard statements: H315 causes skin irritation; H318 causes serious eye damage; H335 may cause respiratory irritation; H336 may cause drowsiness or dizziness; H351 SUSPECTED OF CAUSING CANCER. Body contact hazard rating: High. Read the Safety Data Sheet in full before use.

- **Handling**
  Bitumen fume generated during torch application is a suspected carcinogen — exposure must be minimised, not merely tolerated. Work only in a well-ventilated area, position yourself upwind of the fume, and use mechanical extraction and the respiratory protection specified in the Safety Data Sheet where ventilation is limited or the work is enclosed. Never torch in a confined space without a confined-space assessment and continuous atmospheric monitoring. Wear protective gloves, protective clothing, eye protection and face protection. Molten bitumen at torching temperature causes severe deep burns and adheres to skin — wear long sleeves, gauntlet-style heat-resistant gloves and safety footwear, and never work above your head with molten material. Avoid breathing fume and avoid all skin and eye contact. Do not handle until all safety precautions have been read and understood. Wash all exposed skin thoroughly after

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Safety Precautions and First Aid (continued)

handling and before breaks. Take off contaminated clothing and wash it before reuse — do not take contaminated work clothing home. Roof and deck work requires fall protection and edge protection in accordance with the WHS Regulations. Refer to Hot Works and Fire Safety above for the fire control measures that apply to every torch-applied installation.

First aid

- Molten bitumen burns — cool the affected area immediately with copious cold running water for at least 20 minutes and continue cooling on the way to hospital. DO NOT attempt to remove adhered bitumen from the skin; it is sterile and removal tears the burned tissue. Cover with a clean wet dressing and seek immediate hospital treatment, advising the treating clinician that the burn is adhered hot bitumen.
- Eyes — this product causes serious eye damage. Hold the eyelids apart and flush continuously with running water for at least 15 minutes, moving the eyelids to ensure complete irrigation. Transport to hospital or a doctor without delay. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
- Skin — remove all contaminated clothing including footwear and flush the skin and hair with running water and soap. Seek medical attention if irritation occurs.
- Inhaled — remove the person from the contaminated area to fresh air, lay them down and keep them warm and rested. Seek medical attention without delay if drowsiness, dizziness or breathing difficulty occurs.
- Swallowed — do NOT induce vomiting. Rinse the mouth with water and seek immediate medical attention.
- Fire — evacuate, raise the alarm and attack only a small incipient fire with the extinguisher at the work face. Bituminous membrane fires generate dense toxic smoke; do not enter smoke to fight a developed fire.

POISONS INFORMATION CENTRE: 13 11 26 (Australia-wide, 24 hours)

KEEP OUT OF REACH OF CHILDREN

In an emergency call 000.

Warranty

Standard Product and Performance Warranty: Forspec Protective Coatings Pty Ltd as Trustee for Forspec Protective Coatings (ABN 11 204 033 631) warrants that FORZAFLEX MINERALE 4.5 will be free from manufacturing defects and will not fail under normal usage for a period of ten (10) years from the date of purchase, when installed and used strictly in accordance with this Technical Data Sheet and Forspec's written instructions. This warranty covers the supply of the product only; it does not cover installation, application or workmanship. Remedies are limited, at Forspec's discretion, to replacement of the defective product (or defective portion) or a refund of the purchase price. The full terms, conditions and exclusions are set out in the Forspec Standard Product and Performance Warranty, available at www.forspec.com.au — key conditions include application by a suitably qualified and, where required by law, licensed applicator; use within shelf life; and installation as part of a Forspec approved system without non-approved third-party products.

Project and system warranties: extended project-specific warranties are available at the request of the applicator and must be applied for using the Forspec Warranty Request Form prior to commencement of works. Issue is subject to Forspec approval and is conditional on the use of the complete specified FORSPEC system, application in strict accordance with the current TDS by suitably qualified applicators, and completion of the project quality records described above. The warranty period and terms are as stated in the issued warranty certificate.

Claims: notify Forspec in writing within thirty (30) days of discovery of the alleged defect and within the warranty period, by post to 22/872 Canterbury Road, Roselands NSW 2196 or by email to info@forspec.com.au, including proof of purchase, installation details (date, location, installer), a description of the defect with supporting evidence, and your contact details. Forspec may inspect the site, perform testing and collect samples before determining a claim.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Data Sheet Currency

This Technical Data Sheet is valid for three (3) years from the issue date shown above, unless superseded earlier. It supersedes all previous versions. It is the responsibility of the customer and the applicator to confirm that this document and the corresponding Safety Data Sheet are the current versions, available at www.forspec.com.au.

contact.

(02) 8021 3517 info@forspec.com.au 22/872 Canterbury Road, Roselands 2196 NSW (Head Office) www.forspec.com.au

Conditions of Use, Product Disclaimer, and Statement of Responsibility

1. Accuracy of information. The information in this document is provided in good faith by Forspec Protective Coatings Pty Ltd as Trustee for Forspec Protective Coatings (ABN 11 204 033 631) ('Forspec Protective Coatings') and is, to the best of its knowledge, true and accurate at the date of issue. Forspec Protective Coatings reserves the right to amend this document without notice as part of its continuous product development.

2. Suitability and user responsibility. Substrates, site conditions, workmanship and conditions of use are beyond Forspec Protective Coatings' control. No representation or warranty is made as to the suitability of the product for any particular application. The user must determine the suitability of the product for the intended use by their own assessment and, where appropriate, testing prior to application.

3. Currency of document. It is the responsibility of the customer and the applicator to confirm that this document and the corresponding Safety Data Sheet are the current versions, available at www.forspec.com.au. This document supersedes all previous versions.

4. Compliant use and application. The product must be used strictly in accordance with this document, the relevant Australian Standards, the National Construction Code and all applicable laws and regulations, and must be applied by suitably qualified personnel.

5. Statutory guarantees. Nothing in this document excludes, restricts or modifies any consumer guarantee, right or remedy conferred by the Australian Consumer Law (Schedule 2 of the Competition and Consumer Act 2010 (Cth), ss 64 and 64A) or any other statutory right that cannot lawfully be excluded.

6. Limitation of liability. To the fullest extent permitted by law: (a) all other warranties, conditions and representations, express or implied, are excluded; (b) the total liability of Forspec Protective Coatings for any claim arising out of or in connection with the supply or use of the product is limited, at its election, to the replacement of the product, the supply of an equivalent product, or the refund of the purchase price paid; and (c) Forspec Protective Coatings will not be liable for any indirect, special or consequential loss, including loss of profits, arising from the use of, or inability to use, the product.

7. Advice and recommendations. Any advice, recommendation, information or assistance provided by Forspec Protective Coatings, whether verbal or written, is given in good faith but without liability beyond that stated in clause 6.

8. Governing law. This document, and any claim arising out of or in connection with the supply or use of the product, is governed by and interpreted in accordance with the laws of New South Wales, Australia. Any disputes arising from or relating to this document or the product are subject to the exclusive jurisdiction of the Courts of New South Wales, consistent with the Forspec Standard Product and Performance Warranty.



Your Trusted Partner.



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FORSPEC PROTECTIVE COATINGS

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