

GUIDE TO ROAD MAINTENANCE SOLUTIONS



2017 Edition

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Bitumen

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Bitumen

Puma Bitumen provides conventional and speciality bituminous binder solutions to meet a wide range of road pavement needs, including the following OLEXOBIT® premium polymer modified binders (PMB) for high-performing asphalt and sprayed sealing applications.

Asphalt Binders

OLEXOBIT® AOG is a PMB that is designed for use in open-graded and thin-surfacing asphalt applications to provide increased cohesive strength, durability and resistance to abrasion. (Austroads AG:PT/T190 A25E grade)

OLEXOBIT® SMA⁺ is a PMB formulated specifically for use in stone mastic asphalt applications to provide enhanced cohesive strength and resistance to rutting and fatigue.

OLEXOBIT® AB4 is a PMB that is designed for use in asphalt applications to provide increased cohesive strength and durability in open-graded asphalt. When used in dense-graded asphalt, OLEXOBIT® AB4 delivers medium levels of resistance to rutting and fatigue. (Austroads AG:PT/T190 A20E grade)

OLEXOBIT® AB5 is a PMB that is designed for use in dense-graded asphalt to minimise permanent deformation and fatigue cracking. When used in open-graded asphalt, OLEXOBIT® AB5 provides increased cohesive strength and durability. (Austroads AG:PT/T190 A15E grade)

OLEXOBIT® AB6 is a PMB that is designed for use in dense-graded asphalt to minimise permanent deformation and fatigue cracking on major roads and freeways and in heavy-duty asphalt applications, such as container terminals. (Austroads AG:PT/T190 A10E grade)

OLEXOBIT® A35P is a PMB that is designed for use in dense-graded asphalt where increased asphalt modulus is required to enhance pavement stiffness, or to provide resistance to high surface shear forces. (Austroads AG:PT/T190 A35P grade)

Sprayed Seal Binders

OLEXOBIT® MAX is a PMB that is designed for use in sprayed sealing applications to minimise the risk of reflection cracking on existing cracked surfaces where the cracks are active, or where the potential for cracking exists. It is also suitable for use in severe high stress seal applications and as a holding treatment on high traffic roads. (Austrads AG:PT/T190 S15E grade)

OLEXOBIT® SAM is a PMB that is designed for use in sprayed sealing applications to achieve excellent longterm aggregate retention where the seal is exposed to high traffic-induced stress. It is also used to improve the resistance to reflection cracking with slow to medium rate of movement and as a holding treatment on low traffic roads. (Austrads AG:PT/T190 S35E grade)

OLEXOBIT® HSS is a PMB that is designed for use in sprayed sealing applications to achieve improved aggregate retention over conventional bitumen, where the seal is under medium to high traffic-induced stress. OLEXOBIT® HSS is also suitable for use as a holding treatment on low traffic roads.

OLEXOBIT® SP is a PMB that is designed for use in sprayed sealing applications to provide both improved aggregate retention and resistance to bleeding in situations where conventional Class 170 bitumen is unlikely to provide adequate service.

OLEXOBIT® S45 is a PMB that is designed for use in sprayed sealing applications to alleviate the reflection of cracks on existing cracked surfaces where the cracks are active and a SBS-modified binder is preferred. (Austrads AG:PT/T190 S20E grade)

OLEXOBIT® S60 is a PMB that is designed for use in sprayed seal strain alleviating membrane interlayer (SAMI) applications prior to the placement of an asphalt overlay. (Austrads AG:PT/T190 S25E grade)

OLEXOBIT® CR45 is a binder modified by the addition of crumb rubber derived from used vehicle tyres, which can be used in sprayed sealing applications to alleviate the reflection of cracks.

In addition to the products mentioned here, Puma Bitumen supplies a range of conventional paving grade bitumens, cutback bitumens, and aggregate precoating fluids.

Deformation

Deformation is the change in a road surface from the constructed (intended) profile. Deformation may directly influence the riding quality of a pavement (roughness and water ponding leading to loss of skid resistance) and may reflect structural inadequacies.

Description

Possible Causes

Remedy

Rutting

Longitudinal deformation in a wheelpath. May occur in one or both wheelpaths of a lane and may be a problem at heavy traffic intersections.

Inadequate strength (stability) in surfacing or base.

Investigate and test for strength before determining the most suitable treatments. If a surfacing problem, remove affected areas and replace with correctly designed surfacing. If inadequate base strength, remove and replace with appropriate deeplift asphalt, or overlay with asphalt if surface levels permit. For a granular pavement, a granular resheet may be suitable.



Surface: Peak performance is achieved when asphalt mixes are designed to provide optimum grading and binder levels, and placed correctly to achieve desired compaction.

OLEXOBIT AB5, OLEXOBIT AB6 and OLEXOBIT A35P are premium PMBs that have been designed to provide improved cohesive strength and rut and fatigue resistance and should be considered as an appropriate asphalt binder where rutting is a problem.

Inadequate pavement thickness.

Redesign pavement, considering the economy of total reconstruction against the required thickness of asphalt overlay.

Inadequate compaction in surface or base.

Remove and replace asphalt surfacing and regulate and overlay with a further layer of asphalt. If the rutting results from inadequate compaction of the granular base, proof roll, correct and overlay.

Deformation

Description

Shoving

Bulging of the road surface generally parallel to the direction of traffic and/or horizontal displacement of surfacing materials, mainly in the direction of traffic where braking or acceleration movement occurs.



Possible Causes

Inadequate strength (stability) in surfacing or base.

Inadequate pavement thickness.

Poor bond between pavement layers.

Lack of containment of pavement edge.

Soft areas of subgrade.

Remedy

See remedy for Rutting.

Patch with appropriate depth, higher strength pavement material, such as asphalt. Consider the use of a PMB or SMA.

See remedy for Delamination.

See remedy for Edge Defects.

Investigate cause of local soft area. Deep patching with subsoil drainage should be considered if area is subject to regular inundation.

Depression

Localised area within a pavement with elevations lower than the surrounding area. May not be confined to wheelpaths and could extend across several wheelpaths.



Volume change of subgrade materials due to environmental influences (e.g. drying out due to presence of trees or change in moisture contents of expansive subgrade materials).

Consolidation of isolated areas of soft or poorly compacted subgrade pavement, service and widening trenches or embankment materials.

If the subgrade material continues to change volume, particularly if it is expansive clay, attempt to eliminate moisture variations and waterproof the pavement by resurfacing.

Regulate with bituminous slurry or asphalt.

Deformation

Description

Corrugations

Transverse undulations, closely and regularly spaced with wave lengths ranging from 0.3 to 2m.



Possible Causes

Inadequate stability of asphalt surface.

Inadequate stability of base course.

Compaction of base in wave form.

Remedy

Plane off the surface and replace with improved asphalt mix.

Improve the base course by mixing, stabilising, or replacement, then reseal or overlay. Consider the economy of reconstruction against the required thickness of asphalt overlay.

Remove surface, shape base, re-compact base and resurface or correct and overlay.

Puma Bitumen is recognised nationally for its proven track record in delivering products of consistently high quality. Every day our products perform under the most diverse and demanding road conditions in Australia.

This is attributable to a combination of our unique product technology, comprehensive quality assurance programs, operational efficiency and sophisticated production processes – all supported by our highly skilled and experienced staff.

We maintain an in-house National Technical Centre in Melbourne, which focuses on R&D,

as well as providing technical expertise and support to our customers throughout Australia. Our team of technical specialists is dedicated to ensuring our products are thoroughly tested at every stage – from the assessment and approval of imported bitumen, right through to delivery.

Our product stewardship and rigorous quality management practices reflect our commitment to delivering the highest quality products that perform on the road. Our commitment to quality is recognised by our accreditation to Australian Standard AS/NZS 9001.

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Cracks

Cracking has many detrimental effects, including the loss of waterproofing and load-spreading ability, and usually leads to accelerated deterioration of the pavement condition.

Description

Possible Causes

Remedy

Crocodile Cracks

Interconnected or interlaced cracks resembling a crocodile hide. Usually located in wheelpaths and may have a noticeable longitudinal grain. Cell sizes are generally less than 150mm across but may extend up to 300mm.

Asphalt fatigue.
Inadequate pavement thickness.

Conduct pavement investigation to determine suitable treatments; e.g. plane off and replace asphalt, deep lift asphalt patching, in-situ bitumen stabilisation or reconstruct. Consider a SAM seal as a short term treatment to waterproof the pavement and slow the rate of degradation.



Low modulus base.

If localised, remove pavement and replace with higher strength materials. If evident on the majority of the road, apply a SAMI and overlay, or remove and replace cracked asphalt prior to overlay. Consideration should also be given to in-situ bitumen stabilisation or reconstruction.

Brittle wearing course.

If asphalt, remove and replace, or consider a SAM treatment for a shorter term solution to waterproof the pavement.

Asphalt: With increasing traffic loads, unmodified asphalt mixes often suffer from rutting, shoving and cracking.

An appropriate mix design using OLEXOBIT AB5, OLEXOBIT AB6, OLEXOBIT A35P or OLEXOBIT SMA⁺ PMBs will extend pavement life.

Sprayed Sealing: OLEXOBIT MAX is a PMB that is designed for use in sprayed sealing applications to minimise the risk of reflection cracking on existing cracked surfaces where the cracks are active, or where the potential for cracking exists. OLEXOBIT MAX is also suitable for use in severe high stress seal applications and as a holding treatment on high traffic roads.

Cracks

Description

Block Cracks

Interconnected cracks forming a series of approximately rectangular shaped blocks. Commonly distributed over the full pavement. Block sizes are usually greater than 200mm and can exceed 3m. Joints in pavement layers may reflect through the surface layer and appear as rectangular blocks, particularly joints in concrete pavements overlaid with asphalt.



Possible Causes

Joints in underlying concrete layer.

Shrinkage of underlying cemented material.



Remedy

Thoroughly clean cracks and apply a suitable crack filling material.

Thoroughly clean cracks and apply a suitable crack filling or bonding material. Consider use of a SAM reseal, or, if extensive, a SAMI or GRS followed by an asphalt overlay.

OLEXOBIT MAX is a PMB that is designed for use in sprayed sealing applications to minimise the risk of reflection cracking on existing cracked surfaces where the cracks are active, or where the potential for cracking exists. OLEXOBIT MAX is also suitable for use in severe high stress seal applications and as a holding treatment on high traffic roads.

Meandering Cracks

Irregular linear cracks.



Reflection of a shrinkage crack in underlying cemented material; weakening of the pavement edge through moisture entry; or differential settlements between embankments, cuts or structures.

Tree roots.

See remedy for Block Cracks.

Transverse Cracks

Unconnected cracks running transversely across the pavement.



Reflection of a shrinkage crack or joint in an underlying base (commonly portland cement concrete or cemented materials), construction joint or service trench.

See remedy for Block Cracks.

Cracks

Description

Possible Causes

Remedy

Longitudinal Cracks

Cracks running longitudinally along the pavement. This can occur in isolation or as a series of almost parallel cracks. Some limited branching may occur.



Reflection of a shrinkage crack or joint in an underlying base (commonly Portland cement concrete base or asphalt base); poorly constructed paving lane joint; volume change of expansive clay subgrade; seasonal weakening of pavement edge; or differential settlement of widenings.

See remedy for Block Cracks.

Diagonal Cracks

Unconnected cracks that generally take a diagonal line across a pavement.



Reflection of a shrinkage crack or joint in underlying cemented materials or service installation.

See remedy for Block Cracks.

Crescent-shaped Cracks (Slippage or Shear Cracks)

Half moon or crescent-shaped cracks, commonly associated with shoving, often occurring in a closely spaced parallel group. Mainly associated with asphalt surfacings.



Poor bond between wearing course and underlying layers, wearing course asphalt laid below recommended minimum thickness of 3x nominal mix size, or dragging by paver during laying when asphalt temperatures are low.

High stresses due to braking and acceleration movements.

See remedy for Delamination.

Remove asphalt, apply good quality tack coat and replace with higher stability asphalt at correct thickness.

Asphalt: With increasing traffic loads, unmodified asphalt mixes often suffer from rutting, shoving and cracking. An appropriate mix design using OLEXOBIT AB5, OLEXOBIT AB6, OLEXOBIT A35P or OLEXOBIT SMA⁺ will extend pavement life.

Surface Texture Deficiencies

Surface texture deficiencies cover loss of surfacing materials and texture. While such defects do not usually indicate pavement structural inadequacy, they have a significant influence on the serviceability of a pavement (especially with regard to skid resistance and quality of ride). Some defects, if not corrected, may lead to subsequent loss of pavement structural integrity.

Description

Possible Causes

Remedy

Flushing (Bleeding)

An excess of binder on the pavement surface causing low texture depth and reduced skid resistance.



Sprayed Seal: Excessive application rate of binder with respect to aggregate size. Excess binder or volatiles in underlying surface (e.g. due to patch, flushed area, or fresh initial seal). Penetration of aggregate into base (low strength base).

Asphalt: Initial seal or cold mix using cutback binders which are covered before volatiles have evaporated.

For sprayed seals, apply a PMB reseal designed with a reduced binder application rate over flushed areas. Some badly flushed areas may require pre-treatment with a suitable solvent and fine aggregate (size 7 to 3mm grit). Consider dry-matting, or high pressure water blasting to remove excess binder as a short-term treatment.

For asphalt, remove and replace with appropriate asphalt mix at suitable depth. Where asphalt has been affected by underlying cold mix or inadequately cured

Inadequate asphalt mix design or compaction.

initial seal, consider overlay with UTOGA or OGA. Otherwise, remove asphalt, reprepare base, initial seal with bitumen emulsion and place new asphalt.

Sprayed Sealing: OLEXOBIT HSS has been developed with increased viscosity to reduce the risk of bleeding or flushing where embedment may be a problem, or when resealing over flushed areas.

Asphalt: With increasing traffic loads, unmodified asphalt mixes often suffer from rutting, shoving and cracking. An appropriate mix design using OLEXOBIT AB5, OLEXOBIT AB6 OLEXOBIT A35P or OLEXOBIT SMA⁺ will extend pavement life.

Surface Texture Deficiencies

Description

Ravelling (Fretting)

Progressive disintegration of the asphalt pavement surface by loss of both binder and aggregates.



Possible Causes

Deterioration of binder due to oxidation or damage by fuel.

Adhesion loss between binder and aggregate.

Aggregate breakdown.

Inadequate asphalt mix design (e.g. low binder content).

Inadequate compaction or construction during wet or cold weather.

Hydrophilic aggregates.

Remedy

Reseal to prevent further oxidation. Severe areas may require removal and replacement. Consider bituminous slurry surfacing.

Sprayed Sealing: OLEXOBIT SAM or OLEXOBIT HSS are ideally suited for use where enhanced aggregate retention properties are required.

Asphalt: OLEXOBIT AOG, OLEXOBIT AB4, OLEXOBIT AB5, OLEXOBIT AB6 and OLEXOBIT SMA+ have been designed to provide enhanced mix cohesion to resist ravelling.

Stripping

Loss of aggregate from a sprayed seal, resulting in exposed binder. This may occur either as a loss of individual stones, or as a complete loss of aggregate in a localised area.



Poor adhesion of aggregate to binder (e.g. due to use of dusty or wet aggregate, or binder being too cold when aggregate applied).

Low binder due to inadequate design, low application rate, and/or binder absorption.

Binder brittleness due to ageing.

Inadequate rolling before opening the seal to traffic.

Aggregate deterioration.

Inadequate cure of emulsion binder in seals.

Heavy vehicle turning movements, or areas subjected to high traffic stress.

Reseal area with appropriate binder and aggregate during warm and dry weather and using correct construction practice. Consider application of a HSS seal using PMB, or use of asphalt in heavily trafficked areas, such as intersections. Low binder and isolated aggregate loss can be treated with surface enrichment if traffic conditions allow.

Sprayed Sealing: OLEXOBIT SAM or OLEXOBIT HSS are ideally suited for use where enhanced aggregate retention properties are required.

Asphalt: OLEXOBIT AOG, OLEXOBIT AB5, OLEXOBIT AB6 and OLEXOBIT SMA⁺ have been designed to provide improved rut and fatigue resistance to resist stripping.

Surface Texture Deficiencies

Description

Delamination

Loss of discrete areas of the wearing course layer. There is usually a clear delineation of the wearing course asphalt and the layer below.



Possible Causes

Surface asphalt layer is too thin in relation to asphalt mix size. Inadequate cleaning or inadequate tack coat before placement of upper layers.

Seepage of water through asphalt (especially in cracks) to break bond between surface and lower layers.

Weak loose layer immediately underlying seal.

Underlying surface is highly polished, or has a new or heavy application of line marking.

Remedy

If the delaminated surface layer is on a previously sealed surface, remove remaining unstable areas, clean exposed surface, tack coat and replace with an appropriate asphalt mix. (If unsealed, apply prime or initial seal.)

Unstable areas should be removed, cleaned, tack coated and replaced. Consider crack sealing for other areas (see Cracks).

Compact underlying layer or replace with appropriate depth asphalt. Reseal affected areas using an appropriate binder.

Remove affected area, texture surface and replace with new surfacing.

Polishing

Smoothing and rounding of the upper surface of the sealing aggregate, usually occurring in the wheelpaths. Identified by relative appearance and feel of trafficked and untrafficked areas. Polished areas will feel relatively smooth and may be noticeably shiny.



Inadequate resistance to polishing of surface aggregates, or use of naturally smooth uncrushed aggregate (e.g. water-worn gravel).



Reseal using higher PAFV aggregate.

Sprayed Sealing: OLEXOBIT HSS has been developed with increased viscosity to reduce the risk of bleeding or flushing where embedment may be a problem, or when resealing over polished areas.

Edge Defects

These occur along the interface of a bituminous surface and the pavement shoulder and are most significant where the shoulder is unsealed. The detrimental effects of edge defects include: reduction of surfacing width; loss of ride quality and possible loss of vehicle control; channelling of water at edge of pavement surfacing leading to shoulder erosion; and water entry into base.

Description

Possible Causes

Remedy

Edge Break

Edge of the bituminous surface is fretted, broken or irregular.



Traffic damage due to inadequate pavement surfacing width.

Alignment that encourages drivers to travel on the edge of pavement surfacing.

Weak seal coat, lack of adhesion to granular base.

Widen pavement surfacing if traffic volume warrants it, or patch damaged areas with hot or cold mix. If shoulder damage has ensued, refer to Edge Drop-off.

Check the design alignment, including superelevation. Rectify the design alignment, if necessary.

Reconstruct affected areas by preparing base, followed by prime or primerseal, then seal with appropriate binder.

Edge Drop-off

The vertical distance from the surface of the seal at the edge to the surface of the shoulder. Not usually considered a defect if the drop-off is less than 10 to 15mm



Inadequate pavement width.

Shoulder material with inadequate resistance to erosion and abrasion.

Re-sheeting of pavement without re-sheeting of shoulder.

See remedy for Edge Break.

The following treatments should be considered:

- 1 Patch edge with asphalt, cold mix, or bituminous slurry mixture.
- 2 Backfill shoulder with suitable material to existing road surface level.
- 3 Carry out shoulder stabilisation with bitumen emulsion.

If shoulder requires surfacing, consideration should be given to a sprayed seal, bituminous slurry, or asphalt treatment. Tyne, add additional shoulder material, regrade and compact. Also consider a GRS to avoid reconstruction of the shoulder.

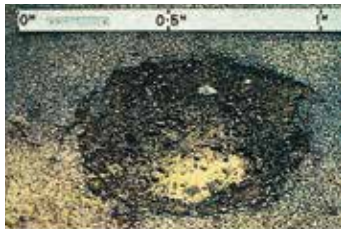
Potholes

Potholes are bowl-shaped depressions in the pavement surface resulting from the loss of wearing course and base course material. They are produced when traffic abrades small pieces of the pavement surface (cracking, delamination, etc), allowing the entry of water.

Description

Potholes

A steep-sided or bowl-shaped cavity extending into layers below the wearing course.



Possible Causes

Localised loss of surface course.

Moisture entry into granular base course through a cracked pavement surface.

Load-associated disintegration of base.

Pick up of bitumen wearing surface caused by binder adhesion to tyres.

Remedy

For localised potholes and where the surface is relatively new, cut out an area greater than the affected area to a depth of 50mm minimum, tack coat all surfaces and backfill with hot mix, cold mix, or bitumen emulsion and grit (depending upon layer thickness and traffic volume).

In addition, specialised mechanical patching machines can be used.

Pothole repairs may be undertaken with bitumen emulsions. Usually, an emulsion tack coat is sprayed onto the surface prior to the addition



of patching material to provide improved adhesion. CRS/170-60 grade bitumen emulsion is suitable, particularly in damp conditions. CRS/170-60 can also be used for the emulsion spray and grit process. CAM/170-60 is a bitumen emulsion that has been specifically formulated for the manufacture of cold mix.

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Patches

Patches are repaired sections of pavement that may or may not be associated with either a loss of serviceability (apart from a loss of appearance) or structural capacity. The extent and frequency of patching can be a useful indicator of the structural adequacy of the pavement.

Description

Possible Causes

Remedy

Patch Failure

Failure of a repaired pavement area.



Inadequate patching material, drainage, depth or workmanship.

Investigate cause of patch failure and undertake appropriate remedial action. This may involve deeper lift patching with better quality material, provision of subsoil drainage, etc., depending upon cause of defect. Ensure adequate adhesion of patching material to substrate by using a sufficient amount of suitable tack coat.



Cracking along the joint with existing pavement resulting in water entry.

Crack seal along the edges of the patch.

Glossary

GRS – Geotextile reinforced seal, which is an application of bituminous binder over which a geotextile is placed, followed by a second application of bituminous binder and sealing aggregate.

HSS – High stress seal, which is a sprayed seal application placed specifically to withstand heavier than normal traffic loadings due to braking, accelerating and turning vehicles.

OGA – open-graded asphalt, which is an asphalt comprised of a large proportion of a single size aggregate, filler and bituminous binder and has an interconnected air voids content of ~20% to 25%.

PAFV – Polished aggregate friction value, which is an indication of the resistance of an aggregate to polishing under traffic, measured on a scale of zero to 100 in a standard laboratory test.

PMB – Polymer modified binder, which is a blend of bitumen, polymer and other additives made under carefully controlled conditions and which has enhanced binder performance for particular applications.

SAM – Strain alleviating membrane, which is a sprayed seal in which the bituminous binder is formulated to reduce reflective cracking, usually by the incorporation of polymer, and is used to waterproof an underlying cracked pavement surface.

SAMI – Strain alleviating membrane interlayer, which is similar to a SAM, but is provided as an interlayer between pavement layers to reduce the likelihood of cracks reflecting through the top asphalt layer from the underlying pavement.

SMA – Stone mastic asphalt, which is an asphalt comprised of a high proportion of coarse aggregate and a high volume of both filler and bituminous binder, the strength of which is predominantly provided by stone-on-stone contact of the coarse aggregate particles.

UTOGA – Ultra-thin open-graded asphalt, which is an open-graded asphalt incorporating a finer aggregate grading for additional shear resistance and which is placed on a heavy tack coat or sprayed seal membrane to form an integral bond with the underlying surface.

Links to further information

Austrroads Technical Publications

Home: austrroads.com.au

Guide to Pavement Technology: austrroads.com.au/road-construction/pavements/resources/guide-to-pavement-technology

Pavement Technology Guides: onlinepublications.austrroads.com.au/collections/agpt/guides

Pavement Research and Technology Reports: onlinepublications.austrroads.com.au/collections/agpt/research-technical

Pavement Technical Notes: onlinepublications.austrroads.com.au/collections/agpt/technical-notes

Pavement Test Methods: austrroads.com.au/road-construction/pavements/resources/pavement-test-methods

Pavement Work Tips: onlinepublications.austrroads.com.au/collections/agpt/work-tips

Bituminous Materials Sealing Safety Guide: onlinepublications.austrroads.com.au/items/AP-G41-15

Australian Asphalt Pavement Association

Home: aapa.asn.au

Advisory Notes: aapa.asn.au/technology-publications/advisory-notes

National Model Specifications: aapa.asn.au/aapa-national-model-specifications

Work Tips: aapa.asn.au/technology-publications/work-tips

Bitumen Burns Cards: aapa.asn.au/technology-publications/bitumen-burns-cards

Australian Road Research Board

Home: arrb.com.au

Knowledge Base: arrb.com.au/Information-services/ARRB-Knowledge-Base.aspx

Publications: arrb.com.au/Information-services/Publications.aspx

Road Research Register: arrb.com.au/Information-services/Road-Research-Register.aspx

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Quality

We don't simply rely on our accreditation to AS/NZS ISO 9001 Quality Management Systems to demonstrate our commitment to quality. We go beyond this by maintaining a dedicated Product Steward to ensure our products comply to your specifications, are fit for purpose, are safe to use and don't harm the environment.

Production

Nothing is left to chance in our production plants. We maintain computer-controlled blending facilities that ensure consistent quality – products that comply first time, every time. Even down to the simple things, like sampling from stirred tanks to ensure fully representative samples, our highly skilled production team deliver to you an assurance that our products will work to your requirements.

R&D

The Puma Bitumen National Technical Centre focuses on research and development – from the assessment and approval of imported bitumen through to its performance in asphalt and sprayed seals. Our skilled team of industry-recognised development technologists understands what is important to you – product technology that is robust, cost effective and fit for purpose.

Expertise

We don't just manage the quality performance of our products – we back them up with the right people, with the right skills and experience, who understand your business needs. Our staff are seasoned professionals who have extensive experience in the road industry, covering all aspects of working with bituminous products; from production, testing and quality control through to logistics, product application and support.

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For advice on which product to use to meet your specific job requirements, please call the Puma Bitumen Technical Helpline

FREECALL 1800 24 88 66

or contact the Puma Bitumen Sales Manager in your region.

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