Protecting Infrastructure Assets
Innovative Waterproofing for Bridges & Tunnels

www.pitchmasticpmb.com
About

Pitchmatic PmB International are part of the RPM Group of companies a $5 billion construction materials conglomerate.

We are at the forefront of technological developments in the world of structural waterproofing and were established over 70 years ago with a commitment to developing new and more effective ways of waterproofing structures.

Pitchmatic PmB International has established local applicator partnerships in Europe, Middle East, America, Africa and APAC.

Over 12,000,000m² of PmB has been applied to structures globally including 11,000 bridges.

Our markets

- Bridges
- Tunnels
- Car Parks
- Roofing
- Rail
- Airports
- Utilities
- Oil & Gas

Evolution of the Brand

Established as Northern Roofing, Sheffield, UK

1945

Acquired quarries in Derbyshire, UK & began to manufacture mastic asphalt

1960's

FPA Pitchmatic BUR & mastic asphalt contracting established

1970's

Continued expansion to a nationwide manufacturer & contractor

1980's

Developed PmB waterproofing with Bayer

1990's

Established sales and regional offices in the Middle East & Asia Pacific

2000

11,000 bridge projects completed globally

Today

Why Waterproof Structures?

The Effects Of Structural Corrosion

- Constant repair & maintenance
- Reduction in the service life of structures
- High cost of remediation
- Operational shut down cost caused by water ingress & repairs

Key Engineering Considerations

- Crack Bridging
  - New cracks require infinite elongation
  - Tensile strength
  - Bond to substrate
- Typical Design Life
  - 120 years
  - Non-degradable
  - Durable & robust
- Resistance To Chemicals & Chlorides

Key Design Considerations

- Resistance To Abrasion
- Crack Bridging
- Rapid Installation
- Weather Resistance
- Adhesion
- Resistance To Fire
- Water Tightness

Choosing The Right Specification

UK History of Bridge Deck Waterproofing Policy

1945 | Ministry of Transportation stipulate waterproofing as being beneficial to bridge stock
1960 | Waterproofing concrete bridges becomes mandatory
1975 | UK National standard BS27 introduced for concrete bridge deck waterproofing requiring BBA testing and certification
1986 | UK DoT appoints TRL to carry out study after premature failures causing issues with existing bridge stock
1987 | TRL study defective systems and recommend improvements in specifications
1994 | Introduction of BD47 standard to replace BS27 improving performance criteria
1999 | Formal introduction of BD47 to UK market is made mandatory. DoT reduced systems approved from twenty five under BS27 to two approved in the UK. Only liquid spray systems that meet BD47 and HAPAS used in the UK
2007 | JAN 9607 published surfacing and tack coat guidelines
2010 | HAPAS provides additional testing to enhance performance and products
2011 | Installer accreditation BDWA led scheme to ensure all applicators are fully trained
2016 | European Standard ETA for Liquid applied systems
The System

What is PmB?

- Two component PUR spray system
- 100% solids reactive resin content
- Solvent free
- No fillers / extender loading
- Rapid setting – 5-8 seconds gel time
- Tack free after approximately 1 minute
- Can be walked on after approximately 10 minutes
- Elastic after approximately 45 minutes

Spray Applied, Seamless Bridge Deck Waterproofing

PmB forms a flexible, chemically resistant seamless membrane tough enough to outlast the design of many structures. PmB has exceptional bond strength to all commonly used substrates, has excellent crack bridging capability, a life expectancy in excess of 30 years and holds British Board of Agrément approval. Tested and approved throughout the world to the highest standards, the PmB system now adds Network Rail and London Underground (LU) approvals to its ever growing list of accreditations.

System Benefits:

- Spray applied - rapid curing
- Excellent global track record
- Seamless membrane
- Excellent crack bridging properties
- Quality assured - including pin hole survey
- Doubles corrosion protection waterproofing
- BBA / HAPAS certified
- Longevity in service life

Applications:

- Bridges
- Footbridges
- Culverts
- Tunnels
- Walkways

History – PmB

1966 | Bayer AG developed Polyurethane
1967 | PmB first applied to pipelines and marine applications
1970 | PmB first applied to bridge deck and swimming pools
1975 | Application of PmB to bridges and tunnels
1986 | Pitchmastic UK developed PmB with Bayer based upon Baytec technology
1994 | Signed global agreement with Bayer
1995 | First applications in GCC and APAC
1996 | Second Severn Crossing - Largest Bridge in the UK at the time!
2000 | Dubai International Airport, UAE waterproofed using PmB
2005 | Palm Jumeirah Gateway and Crescent Bridge, UAE
2010 | Sheikh Zayed Bridge, UAE completed
2012 | Marina Coastal Expressway, Singapore C485 Completed
2014 | Danube Bridge, Bulgaria completed
2016 | Completed RA166 and RA167 Projects in Kuwait totaling 520,000m²
2018 | Completed Doha Link, Kuwait one of the largest structures of its kind in the Middle East totaling 13.7km long
2019 | Over 11,000 bridge projects completed globally

Dr. Otto Bayer of Bayer Group invented Polyurethane in 1937

Bayer Group developed an Elastomeric Polyurethane system (Baytec) in 1966.
Installation Process

Pre Installation Checks
• No system will perform if preparation is not carried out satisfactorily.
• Clean, dry and free of contamination.

Surface Preparation

Primer
• Applied by airless spray or roller.

Application Layer

Tackcoat
• Polymer modified.
• 95°C Softening point Bitumen emulsion.
• Applied by squeegee over sanded key layer.

Sanded Key Application Layer
1. Primer PMCS/01
2. 1-3mm Silica sand.
Provides enhanced bonding to overlay.

Membrane
• PmB two part Polyurethane spray applied elastomer.
• Installed using computerised two component spray machines.

Spray Technology
• Versatile to suit access, application area and clients programmes and productivity requirements.

QA/QC Application

Application QA/QC – Pinhole Check

QA/QC Quality Testing

QA/QC Quality Thickness
Global Approvals

- Abu Dhabi DOT
- ADAC Saudi Arabia
- Al Ain Municipality
- Dubai RTA
- Lusail Development, Qatar
- Ashghal, Qatar
- Muscat Municipality and MOTC
- Kingdom of Bahrain Roads and Housing
- Qatar Petroleum
- Kuwait MPW
- Department of Transport BD47/99, BBA HAPAS UK
- LIETR Cert R&T 9359 Finland
- BAM Institute ZTV-BEL B3/87 Germany
- EMPA Cert 4944-1-2-3 Switzerland
- THSR Specification 07140 Taiwan
- New Jersey Rail, New York DOT
- MASS DOT Highways, USA

Cradle to Grave Strategy

We liaise closely and offer technical support and site assistance to all commercial clients, consultants & main contractors – we stay involved through the whole life cycle of the project.

Project Case Studies

CP3, A Lusail Qatar

25,000m² of PmB waterproofing applied to bridge deck & underpass of this super structure.
Case Studies

Doha Link, Kuwait

Supply and installation of 280,000m² PmB structural waterproofing.

King Abdullah Aziz Flyover, Riyadh, KSA

31,500m² of PmB structural waterproofing was applied to the main steel deck and approach bridges.

Sheikh Zayed Bridge, UAE

58,000m² of PmB waterproofing applied to this prestigious bridge.

New Spire Bridge, UK

9,000m² of PmB waterproofing was applied to the concrete bridge deck.

Second Severn River Crossing, UK

Application of 176,000m² of PmB spray applied waterproofing.

Tinsley Viaduct, UK

8,400m² of PmB structural waterproofing, aggregated key coat and hot melt applied to bridge deck. 2,000m² combined waterproofing and high friction surfacing was applied to the steel walkway plates.