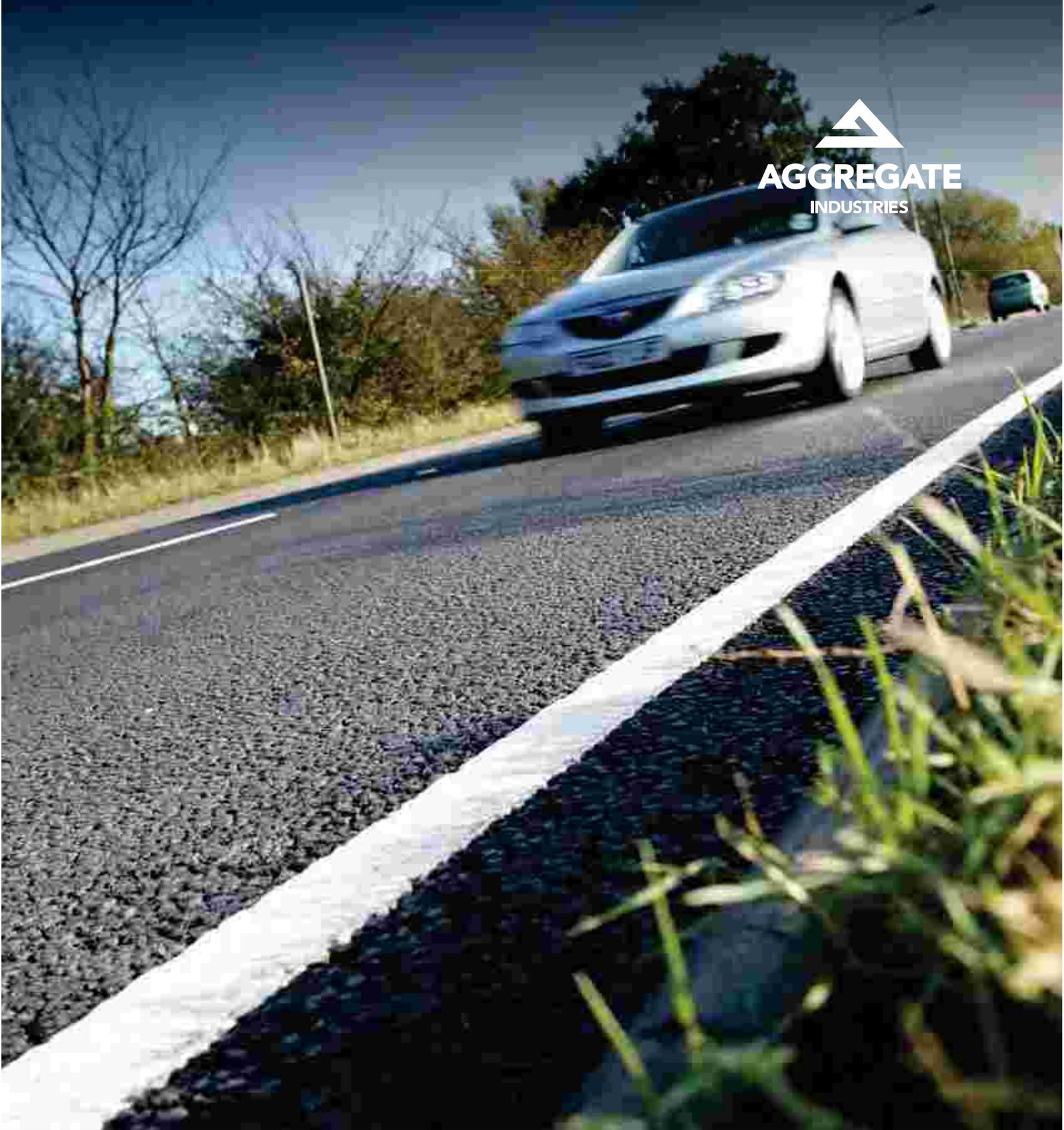




**AGGREGATE**  
INDUSTRIES



## **Asphalt**

Performance asphalt product portfolio

# An introduction to Aggregate Industries

Aggregate Industries is one of the UK's leading aggregates, construction and building materials groups.

We offer a unique product portfolio and delivery service, producing and supplying a wide range of construction solutions. Everything from aggregates and asphalt to ready-mixed concrete, from blocks and cement to masonry, commercial landscaping and precast concrete products.

In addition, we supply cementitious materials, and also offer a national contracting business, that boasts over 70 years' experience in highways maintenance, road and airfield surfacing, public realm, construction and traffic management.

Aggregate Industries is very much a leading player in the construction industry operating at every level of the supply chain.

## Health and safety

We place the highest importance on the health and safety of our workforce. In fact, we make the continuous improvement of health, safety and welfare our number one business priority. We won't be content until we achieve zero harm to people.

With this in mind, we have developed a health and safety policy across all our operations, with systems and procedures that have been designed to achieve the highest possible standards of safety management.

## The Responsible Source™

Aggregate Industries has been working for more than a decade to create sustainable solutions for our core markets. We have been addressing issues such as health and safety, quality, ethical trading, carbon and water management, biodiversity and social responsibility so that we can offer our customers truly sustainable solutions.

This work resulted in us becoming the first company in the world to be certified to BES 6001, Framework Standard for the Responsible Sourcing of Construction Products, by the Building Research Establishment (BRE).

All Aggregate Industries' UK manufactured products have a certificated minimum rating of VERY GOOD under the BES 6001 standard.

## Life™

We have introduced Life to clearly identify our sustainable products and services, making it easier for specifiers to understand and use them. This is the first time a construction supplier has gathered together all its sustainable products and solutions under one simple and understandable brand.

Life doesn't just set a precedent, it also sets a standard. Each of the solutions that carry the Life logo meet or exceed at least one of the three benchmarks that we have set in the key areas of:

### • Carbon reduction

Must reduce carbon in manufacture or in use by at least 20%

### • Non-primary material content

Must contain a minimum of 45% non-primary material based on the entire product mix

### • Water treatment or management within a SUDS solution

The management of the quality and quantity of water within a Sustainable Drainage System.

**Life**®

**20%** reduction in CO<sub>2</sub>

**45%** non-primary materials

**Sustainable  
Drainage Systems**

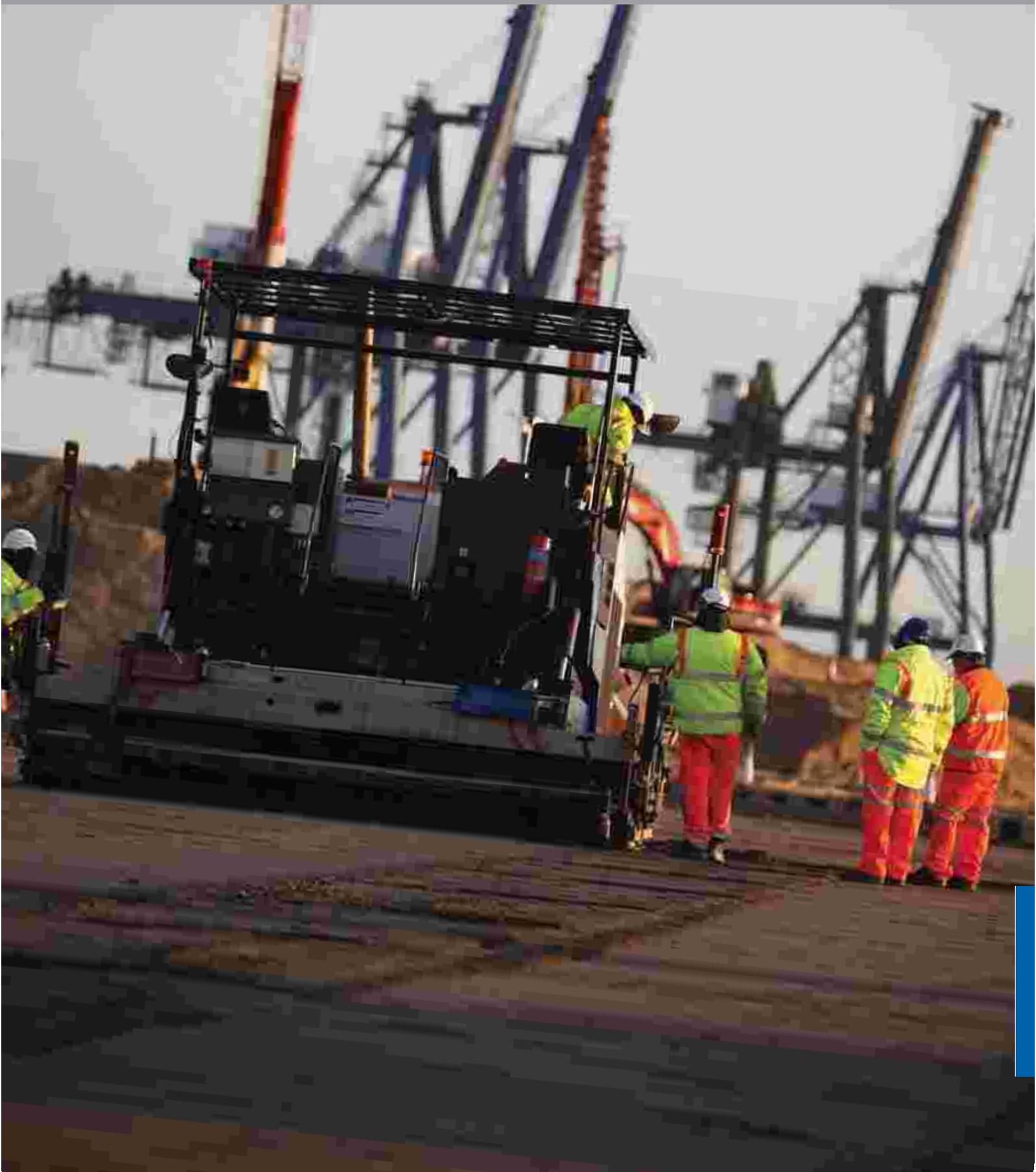
For more information please visit  
[www.aggregate.com/life](http://www.aggregate.com/life)



FM96927



EMS96928



# Introduction

## Our asphalt capability

As a leading supplier of asphalt, we manufacture and supply British/European standardised ranges as well as a collection of specialist asphalt products to meet all your surfacing needs.

We work hard to make sure we understand our clients and customers, partnering with them to meet both their needs and those of the end user across a range of demanding sectors, each with its own set of performance, scheduling and cost criteria.

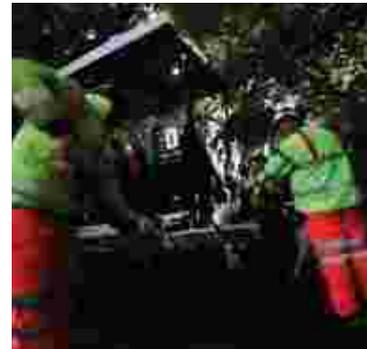
To do this, we have developed a wide range of more than 50 products all supported by total commitment to safety, sustainability and service.

This brochure will give you an insight into Aggregate Industries' asphalt products, how we stand apart from our competitors, and importantly how you can call upon all our attributes to add value to your projects.

### Experience

Our products have been used in major highways, ports, airfields and other construction and transportation projects as well as the domestic markets for more than 60 years.

Our customers and clients include the majority of major highways contractors, as well as working with clients such as the Highways Agency, Defence Estates, British Airports Authority (BAA) and major developers. We also work with consulting engineers to provide outstanding technical advice or logistical solutions to their challenges.



## Guide to symbols

We have placed the following symbols on each product page to help you quickly identify which sectors our products are most suitable for.



### Airfields

Asphalts for airfield taxiways and runways.



### Commercial

Asphalts for commercial areas and supermarket car parks.



### Domestic

Asphalts for domestic surfaces including driveways and footpaths.

# Service commitment

## Our asphalt promise



Supplying high quality asphalt products to the UK construction industry is about more than just the material. We understand the importance that great service has on projects and it is this commitment to our customers that has led us to develop 'our asphalt promise' initiative.



### First load notification

Optional text service that notifies gangs when the first load leaves our plant. This ensures that you can anticipate load arrival and ensure maximum productivity.



### Reserve plants on standby

Automatic plant backup at nights and weekends to ensure receipt of materials during critical periods. Whatever your tight schedules or off peak working hours we will ensure you receive the material you need to complete the job.



### Sharing our knowledge

Equip your teams with the knowledge and expertise to demonstrate best practice. Our Asphalt Academy offers free regional product and installation training for foremen, supervisors and managers, helping to mitigate or reduce contract remedial issues.



### Late dispatch notification

You can be notified by text or phone within 5 minutes of any loads that leave our sites late due to plant breakdown. With a guaranteed update after 30 minutes with appropriate actions to complete delivery.



### Emergency call out

Rely on us to supply your emergency asphalt with our night and weekends call out facility (chargeable). Simply call your local sales team to make arrangements for us to provide you with this service.



### 24hr supply statements

Optional statements whenever you need them. Keep track and invoice quicker with our optional supply statements summarising all asphalt materials delivered during the previous 24 hour period.

Call us today to see how our asphalt promise can help your business on 01455 285 200.



### Industrial

Asphalts for industrial heavy duty areas.



### Infrastructure

Asphalts for motorways, highways, roads and pavements.



### Sports and leisure

Asphalts for multi-use games areas, tennis courts and motor racing tracks.

# Performance asphalt product portfolio pathfinder

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# Asphalt

## product range

Airflex™

Technical information

[www.aggregate.com/airflex](http://www.aggregate.com/airflex)



A range of airfield asphalt concrete mixtures appropriate for use in runways and taxiways. Airflex can be grooved for runway applications to provide a more economical alternative to traditional grooved Marshall Asphalt.

- Applicable for heavy duty airfield use; both taxiways and runways
- High level of rut and scuffing resistance
- Widely available
- Can be grooved for runway applications
- Available as a standard penetration grade binder or polymer modified for more heavy duty use.

### Airflex

| Typical mechanical properties                         | Airflex (50 pen) | Airflex (pmb) | Reference: Marshall Asphalt (70/100 pen) | BBA continuous specification AC10 BBA-C (surface) |
|-------------------------------------------------------|------------------|---------------|------------------------------------------|---------------------------------------------------|
| UK wheel tracking @ 60°C Rut depth (mm)               | 2.3              | 1.8           | 10.0                                     | N/A                                               |
| UK wheel tracking @ 60°C Rut rate (mm/hr)             | 0.9              | 0.7           | 4.0                                      | N/A                                               |
| UK stiffness @ 20°C, 2.5 Hz (MPa)                     | 5000             | 4700          | 1000                                     | N/A                                               |
| Richness Modulus                                      | 3.7              | 3.7           |                                          | >= 3.6                                            |
| Gyratory compaction (% air voids)                     | 13.9<br>5.8      | 15.3<br>6.8   |                                          | >10 @ 10 gyrations<br>3-7 @ 60 gyrations          |
| Resistance to deformation (% rutting @ 10,000 cycles) | 6.7              | 6.2           |                                          | Class 1 <=15%<br>Class 2 <=10%<br>Class 3 <=7.5%  |
| Slab % air void content                               | 6                | 5             |                                          | 4-7%                                              |
| Duriez (water sensitivity) @ 18°C                     | 0.83             | 0.87          |                                          | >=0.8                                             |

Airmat®

**Technical information**  
[www.aggregate.com/airmat](http://www.aggregate.com/airmat)


A stone mastic asphalt (SMA) derivative designed to meet both Defence Estates and BAA specifications. The product is suitable for use in airfield taxiways, aprons and runways where its tough and durable properties provide an economic alternative to traditionally specified Marshall Asphalt.

- Economic alternative to Marshall Asphalt
- Widely available
- Tough and durable
- Good texture that does not require grooving - appropriate for light runway use
- Airmat has been used successfully for many regional and major airports.

### Airmat 10mm (BAA specification)

| Property                                             | Specification | Results |
|------------------------------------------------------|---------------|---------|
| Compacted bulk density (Mg/m <sup>3</sup> )          | No requ't     | 2.370   |
| Allowable air void range per individual specimen (%) | 1.5-4.5       | 2.9-3.4 |
| Mean air voids (%)                                   | 2.0-4.0       | 3.1     |
| Wheel-tracking rate (mm/hr) (at 60°)                 | 2.0 max       | 1.6     |
| Wheel-tracking depth (mm) (at 60°)                   | 4.0 max       | 3.2     |
| Mean ITSM (MPa)                                      | No requ't     | 2315    |
| Texture depth (individual test)                      | 0.9+/-0.4     | 1.3     |

# Asphalt

## case study

### Birmingham International Airport (BHX)

Birmingham International Airport is the second busiest airport in the UK outside London, with 115,000 flights serving over 9 million passengers per year. Aggregate Industries was contracted by the airport to provide a specialist product to deal with a unique problem - create an asphalt material capable of withstanding the high stress turning forces of high axle loading vehicles.

The initial project scope focused on three of the taxiways at the airport.

Aggregate Industries proposed Airflex as the best material to cope with the considerable turning pressures in these areas. The subsequent success of Airflex led to BHX requesting that the material be laid over a much larger area.

Airflex was laid to a depth of 40mm. The 10mm aggregate was sourced from Aggregate Industries' Bardon Hill quarry and the full depth reconstruction of the pavement structure included a 60mm layer of Airmat as a binder course, a 70-170mm layer of 20mm HDM as a base and a geotextile.

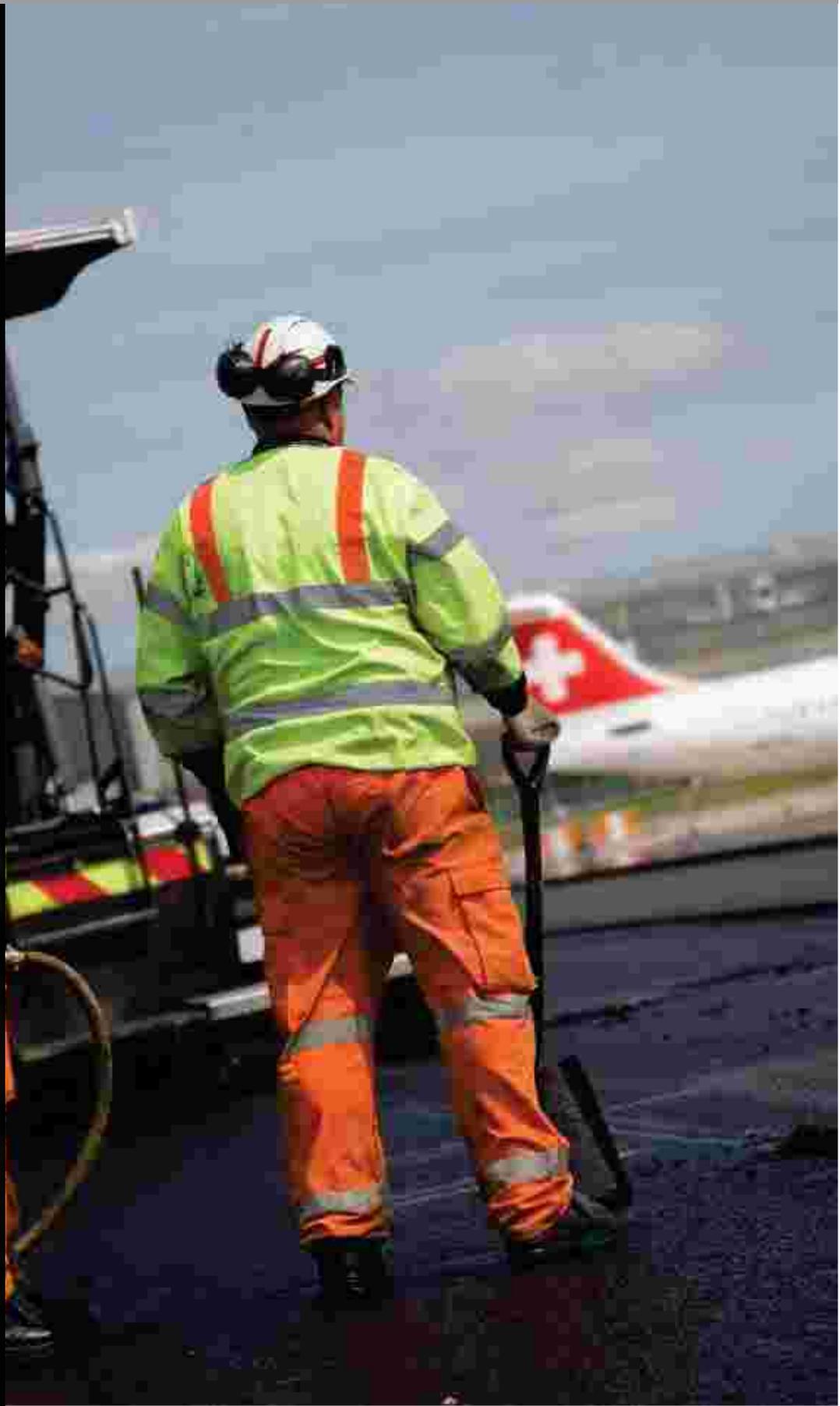
The new surfacing application of Airflex at BHX was the first of its kind at an airfield.

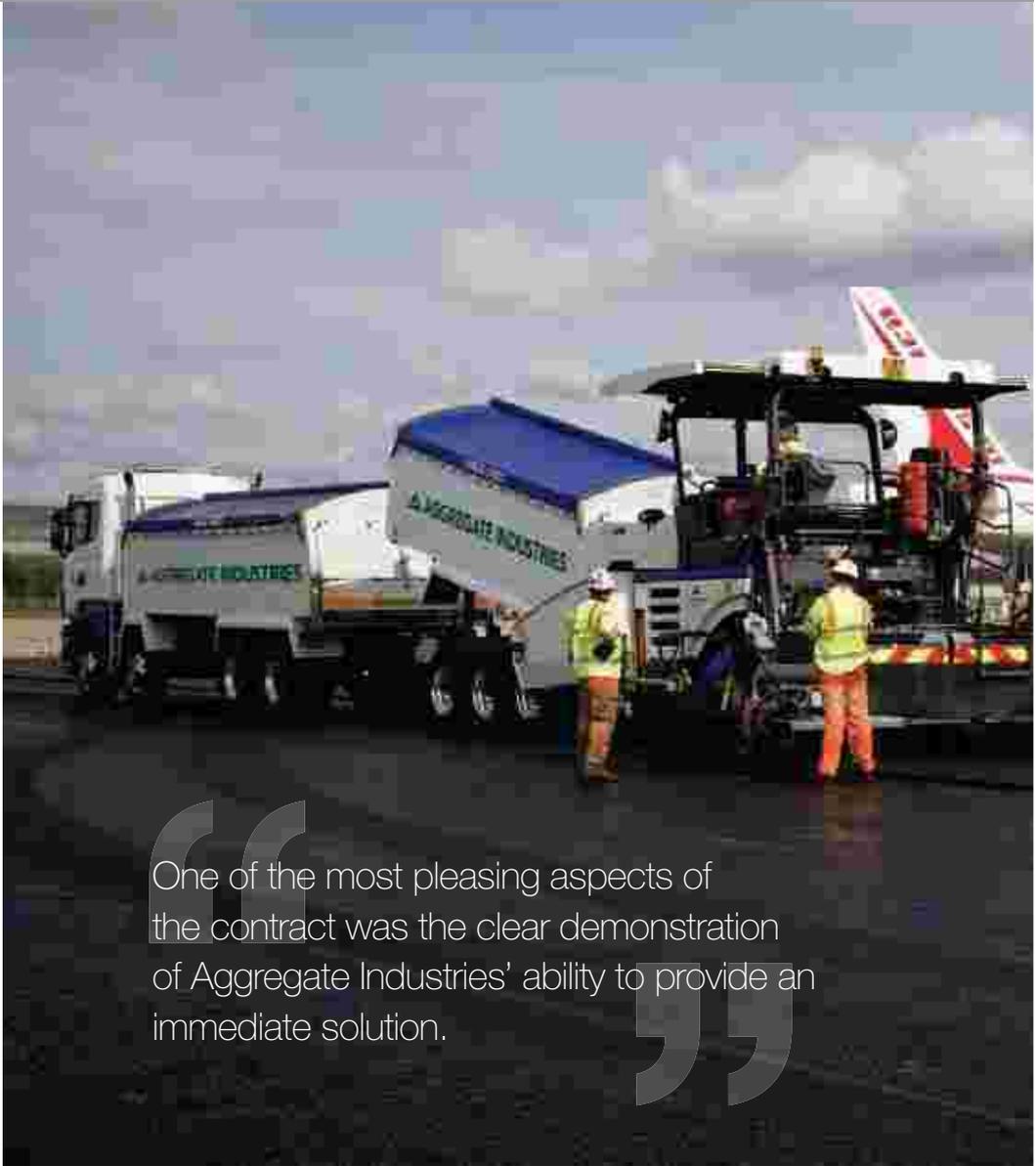
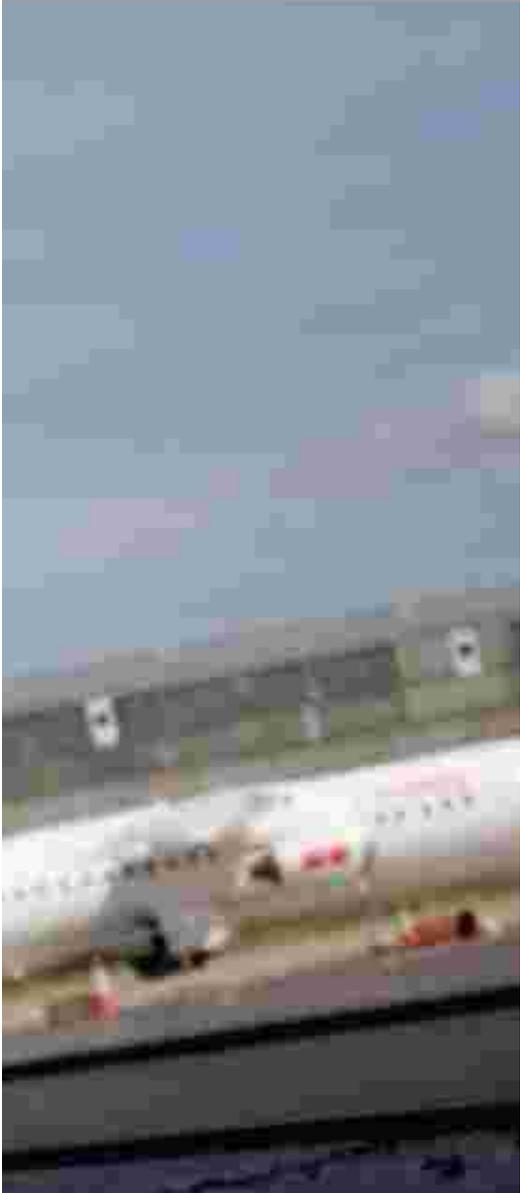
**Engineer:** Jacobs

**Client:** Birmingham International Airport

**Contractor:** Fitzpatrick

**Materials:** Airflex and Airmat





“One of the most pleasing aspects of the contract was the clear demonstration of Aggregate Industries’ ability to provide an immediate solution.”



# Asphalt

## product range

### Drainasphalt™

**Technical information**

[www.aggregate.com/drainasphalt](http://www.aggregate.com/drainasphalt)



A permeable asphalt which allows water to pass through to the underlying structure. The product comes in various aggregate sizes to suit a range of applications and can be combined with our wide range of other sustainable drainage products to offer the perfect Sustainable Drainage System (SUDS) solution.

- Porous material allows surface water to drain
- Inverted texture allows for high capacity acoustic absorption.
- Developed for use as an asphalt porous surface and binder course component in a SUDS pavement

### Drainasphalt

key performance properties

| Mechanical properties (typical values)   | Drainasphalt 10 | Drainasphalt 14 | Drainasphalt 20 |
|------------------------------------------|-----------------|-----------------|-----------------|
| % Air Voids                              | 18 - 25         | 18 - 25         | 18 - 25         |
| ITSM stiffness @20°C, 2.5 Hz (MPa)       | 660             | 850             | 920             |
| Retained stiffness (%)                   | > 75            | > 75            | > 75            |
| EN 12616, hydraulic conductivity (mm/hr) | 15,044          | 17,390          | 18,473          |

# Asphalt case study

## Hollins Park Hospital, Hollins Lane, Warrington



Five Boroughs Partnership NHS Foundation Trust in Warrington needed additional car parking space utilising a SUDS system but without having to incorporate any extra drainage onto the site that could potentially overload the existing drainage system.

'Financial considerations also meant that no additional surface water drainage costs were incurred. The design required a free draining porous material and Drinasphalt from Aggregate Industries was recommended. The laying of the binder course was carried out over two days as the laying method involved the material being transported via a dumper into the paving machine to minimise the disturbance of the aggregate layer. The surface course was applied one week later.

It was necessary to coordinate with the hospital regarding material deliveries because the site continued to be operational and well organised traffic management was essential to avoid a build up of delivery vehicles.

The Trust was delighted with the end result and especially pleased with the way the Drinasphalt material has performed.

Hollins Park Hospital was delighted with the end result and especially pleased with the way the Drinasphalt material has performed.

**Client:** NHS

**Main Contractor:** Evacuation and contracting – Contracting UK Ltd (Groundworkers – Devery & O'Halloran)

**Contractor:** J&P Road Surfacing

**Consultant/Engineer:** WSP UK

**Materials:** 275t – 20mm Drinasphalt  
331t – 10mm Drinasphalt



# Asphalt product range

## Foamix™

Technical information

[www.aggregate.com/foamix](http://www.aggregate.com/foamix)



**Life®**  **80%\*** non-primary materials



Foamix™ is a foamed bitumen cold mixed asphalt. This is a blend of carefully combined ingredients, most of which are recycled aggregates, bound together by a 'foam' of bitumen and water. This binder is not an emulsion, but is a controlled physical and chemical process, to ensure ultimate performance.

### Standard

- Can use up to 80% recycled product
- Material is supplied and laid cold. No asphalt fumes
- Store it in any suitable convenient location, for everyday use or 'out-of-hours' emergencies
- A single layer of Foamix can replace multiple layers e.g. base and binder course give savings in both labour and time.

### Heavy duty

- Structurally and in use equivalent to HDM50/DBM50
- Can be trafficked immediately
- Can use up to 80% recycled product
- Low density giving up to 10% reduction in material required compare with hot mix materials.

## Foamix

### key performance properties

|                                       |               |             |
|---------------------------------------|---------------|-------------|
| Heavy-duty foamix mix stiffness (MPa) | Typical 5,200 | Min - 4,500 |
| Standard foamix mix stiffness (MPa)   | Typical 2,900 | Min - 2,400 |
| Soaked stiffness                      | 95%           | Min - 80%   |
| Refusal density (kg/m <sup>3</sup> )  |               | 2090 - 2270 |

\* Represents 80% non-primary material content within the complete mix design dependant on application.



A premium motor racing surfacing material designed for demanding high-performance circuits. This product is tried and tested and has been used on many race circuits around the country.

- High-grip surface with appropriate selection of aggregate for safer high speed racing
- Uniform surface texture
- Jointless mat option when laid in echelon
- High durability for longer lasting surface
- Capable of producing an even, flat track to ensure predictable handling characteristics.

| Prixmat                       |              |             |
|-------------------------------|--------------|-------------|
| key performance properties    |              |             |
| Typical mechanical properties | 10mm Prixmat | 6mm Prixmat |
| Air voids (%) at design       | 2 - 4        | 2 - 4       |
| Air voids (%) in pavement     | 1 - 6        | 1 - 6       |
| Texture depth (mm) mean       | 0.8 - 1.2    | <0.8        |



# Asphalt

## product range

SMApave®

Technical information

[www.aggregate.com/smapave](http://www.aggregate.com/smapave)



SMApave® is a HAPAS approved thin surface course material available in 14mm and 10mm nominal size aggregates. It has been specifically designed for use in heavily trafficked, high speed urban highways. This product is provided as a surface course system and is only installed by approved contractors to ensure its optimum performance.

- Long term durability and rut resistance
- Improved resistance to scuffing
- Economic alternative to HRA
- Noise and spray reduction.

### SMApave

key performance properties

#### 14mm

| Test parameter                       | HAPAS performance level | HAPAS requirement |
|--------------------------------------|-------------------------|-------------------|
| Texture depth                        | 3                       |                   |
| Untrafficked (mm)                    |                         | ≥1.5              |
| After 2 years of trafficking (mm)    |                         | ≥1.0              |
| Wheel tracking                       | 3                       |                   |
| Rate (mean/max individual) (mm/hr)   |                         | ≤5.0/≤7.5         |
| Rut depth (mean/max individual) (mm) |                         | ≤7.0/≤10.5        |

#### 10mm

| Test parameter                       | HAPAS performance level | HAPAS requirement |
|--------------------------------------|-------------------------|-------------------|
| Texture depth                        | 2                       |                   |
| Untrafficked (mm)                    |                         | ≥1.2              |
| After 2 years of trafficking (mm)    |                         | ≥0.8              |
| Wheel tracking                       | 3                       |                   |
| Rate (mean/max individual) (mm/hr)   |                         | ≤5.0/≤7.5         |
| Rut depth (mean/max individual) (mm) |                         | ≤7.0/≤10.5        |

S.M.A.tex®

Technical information  
[www.aggregate.com/smatex](http://www.aggregate.com/smatex)



The S.M.A.tex® range of asphalt surface course products is based on the application and experience of European based stone mastic asphalt technology.

- Long term durability and rut resistance
- Economic alternative to traditional materials
- Improved resistance to scuffing
- Noise and spray reduction.

#### The S.M.A.tex range

##### S.M.A.tex CARRIAGEWAY

- Has been intentionally designed outside of the regime for HAPAS to allow a wider range of application and performance enhancement particularly where high levels of retained textures is not considered important such as for lower speed heavy use highways
- Available in 6mm, 10mm, 14mm and 20mm aggregate sizes to cover layer thicknesses of between 15mm - 80mm.

##### S.M.A.tex INDUSTRIAL

- Designed to provide a durable asphalt surfacing for industrial type applications
- Has a lower texture depth than either of our SMA highway products specifically to improve resistance to scuffing from container forklifts etc.

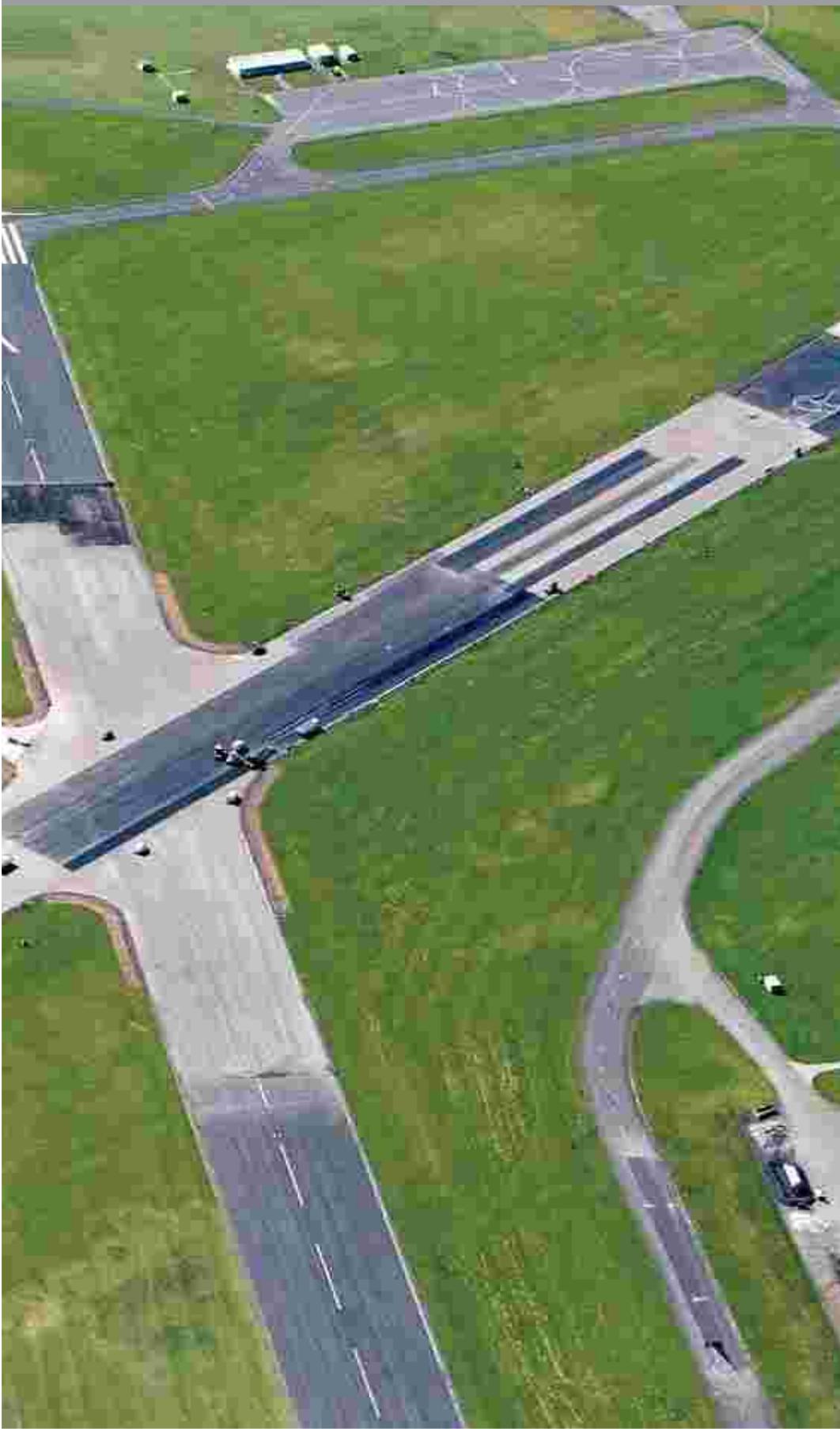
##### Forpave

- Forpave has been developed for use in areas where the risks of fuel spillage and leakage are high and there is a need to improve resistance to degradation caused by oil and fuel spillage
- Independent assessment of Forpave has shown that deterioration caused by fuels such as diesel and petrol when compared to HRA WC and other asphalts with non-modified binders is much improved.

# Asphalt case study

Royal Naval Air Station (RNAS) Culdrose, Cornwall





One of Britain's busiest military airfields, the Royal Naval Air Station (RNAS) at Culdrose has been resurfaced using our enhanced stone mastic asphalt (SMA).

The asphalt used contains a special polymer modified bitumen designed to increase the surfacing's strength and resist deformation under heavy loads. This will provide search and rescue helicopters and jet trainers with a tough, hard wearing surface and help prolong the operation of the runway.

The SMA material was chosen for this contract to ensure that the surfacing resists rutting caused by tightly turning aircraft using taxiways at low speed. The SMA surface course was laid to a depth of 50mm, over an SMA binder course material, also 50mm deep.

The successful application at RNAS Culdrose could lead to SMA replacing traditional Marshall Asphalt and becoming the standard for military runways.

**Client:** MOD Navy

**Main Contractor:** Debut Services Ltd

**Contractor:** Aggregate Industries (Contracting)

**Engineer:** RPS

**Materials:** 0/14mm Marshall Asphalt, 0/20mm Marshall Asphalt binder course, 0/10mm SMA surface course and 0/20mm SMA binder course.

# Asphalt

## product range

### S.M.A.tex® 942

#### Technical information

[www.aggregate.com/smatex942](http://www.aggregate.com/smatex942)



S.M.A.tex® is a HAPAS approved thin surface course material available in 14mm and 10mm nominal size aggregates and has been specifically designed for use in heavily trafficked, high speed urban highways. This product is provided as a surface course system and is installed only by our contracting business to ensure compliance with Specification for Highway Works Clause 942.

- Long term durability and rut resistance
- Improved resistance to scuffing
- Economic alternative to traditional materials
- Noise and spray reduction.

### S.M.A.tex 942

key performance properties

#### 14mm

| Test parameter                       | Performance level | Requirement |
|--------------------------------------|-------------------|-------------|
| Texture depth                        | 3                 |             |
| Untrafficked (mm)                    |                   | ≥1.5        |
| After 2 years of trafficking (mm)    |                   | ≥1.0        |
| Wheel tracking                       | 3                 |             |
| Rate (mean/max individual) (mm/hr)   |                   | ≤5.0/≤7.5   |
| Rut depth (mean/max individual) (mm) |                   | ≤7.0/≤10.5  |

#### 10mm

| Test parameter                       | Performance level | Requirement |
|--------------------------------------|-------------------|-------------|
| Texture depth                        | 2                 |             |
| Untrafficked (mm)                    |                   | ≥1.2        |
| After 2 years of trafficking (mm)    |                   | ≥0.8        |
| Wheel tracking                       | 3                 |             |
| Rate (mean/max individual) (mm/hr)   |                   | ≤5.0/≤7.5   |
| Rut depth (mean/max individual) (mm) |                   | ≤7.0/≤10.5  |

# Superbase™

## Technical information

[www.aggregate.com/superbase](http://www.aggregate.com/superbase)



This product is a specifically engineered asphalt concrete 14mm binder course mixture designed to fill the gap within the range of binder course materials described in EN/UK asphalt standards.

- Suitable for use in either low or high density traffic situations
- Relatively rich binder contents and low insitu void contents; designed to be 6% or less rendering them impermeable
- Equivalent stiffness modulus to a conventional HDM50 or HMB35 for Superbase grades 50 and 35 respectively
- Uniform mat with low risk of segregation.
- Developed to provide the function of a durable and impermeable supporting layer below modern thin surfacings

## Superbase

### key performance properties

| Typical mechanical properties                | Superbase 35 | Superbase 50 |
|----------------------------------------------|--------------|--------------|
| UK wheel tracking @ 60°C rut rate (mm/hr)    | 0.8          | 1.0          |
| UK wheel tracking @ 60°C rut depth (mm)      | 1.2          | 1.9          |
| UK stiffness @ 20°C, 2.5 Hz (MPa)            | 4500         | 3000         |
| Vacuum repeated load axial test (vRLAT)      | 21           | 26           |
| Maximum strain rate (microstrain/100 cycles) |              |              |
| Vacuum repeated load axial test (vRLAT)      | 0.46         | 0.55         |
| Maximum strain (%)                           |              |              |

# Asphalt product range

## Supercolour®

Technical information

[www.aggregate.com/supercolour](http://www.aggregate.com/supercolour)



A range of red/rustic coloured asphalt products based around BS/EN close, dense and medium graded standard mixtures. The product can be used in any application appropriate to the standard mixture but particularly where colour differentiation is deemed an important aspect such as for private drives, cycle-ways, pedestrian areas and residential roads.

There are three colour grades:

1. **Supercolour:** Basic level of pigmentation.
2. **Supercolour Advanced:** Increased level of pigmentation for deeper colour saturation.
3. **Supercolour Extra:** Uses a complementary coloured aggregate for a longer lasting colour effect.



# Asphalt

## case study

### Supercolour® Ultra

#### Technical information

[www.aggregate.com/supercolourultra](http://www.aggregate.com/supercolourultra)



A range of distinctly coloured asphalts that use a translucent penetration grade, resinous hydrocarbon binder. The special binder is readily pigmented and provides a wide range of asphalt colours.

- Allows option of visual variety for road surfaces and public areas
- Allows clients to enhance safety through colour-coded demarcation areas
- With very light colours it can lead to a significant reduction in the energy required for lighting and improve visibility and safety
- A range of colours are available, please call our sales office for more details.

### Supercolour Ultra

#### key performance properties

| Mechanical properties (typical)                | Supercolour Ultra 6 | Supercolour Ultra 10 | Supercolour Ultra 14 |
|------------------------------------------------|---------------------|----------------------|----------------------|
| UK wheel tracking @ 45°C mean rut rate (mm/hr) | 0.5                 | 0.3                  | 0.2                  |
| Max rut depth @ 45°C (mm)                      | 1.4                 | 0.9                  | 0.8                  |
| Wheel tracking @ 60°C rut rate (mm/hr)         | 0.7                 | 0.7                  | 0.6                  |
| Max rut depth @ 60°C (mm)                      | 1.9                 | 1.8                  | 1.4                  |
| UK stiffness @ 20°C 2.5 Hz (MPa)               | 1551                | 1942                 | 2420                 |
| Typical texture depth (mm)                     | 0.8                 | 1.0                  | 1.3                  |
| Nominal thickness (mm)                         | 20 - 30             | 30 - 40              | 40 - 50              |

# Asphalt

## product range

### Supercolour® Exposed

#### Technical information

[www.aggregate.com/supercolourexposed](http://www.aggregate.com/supercolourexposed)

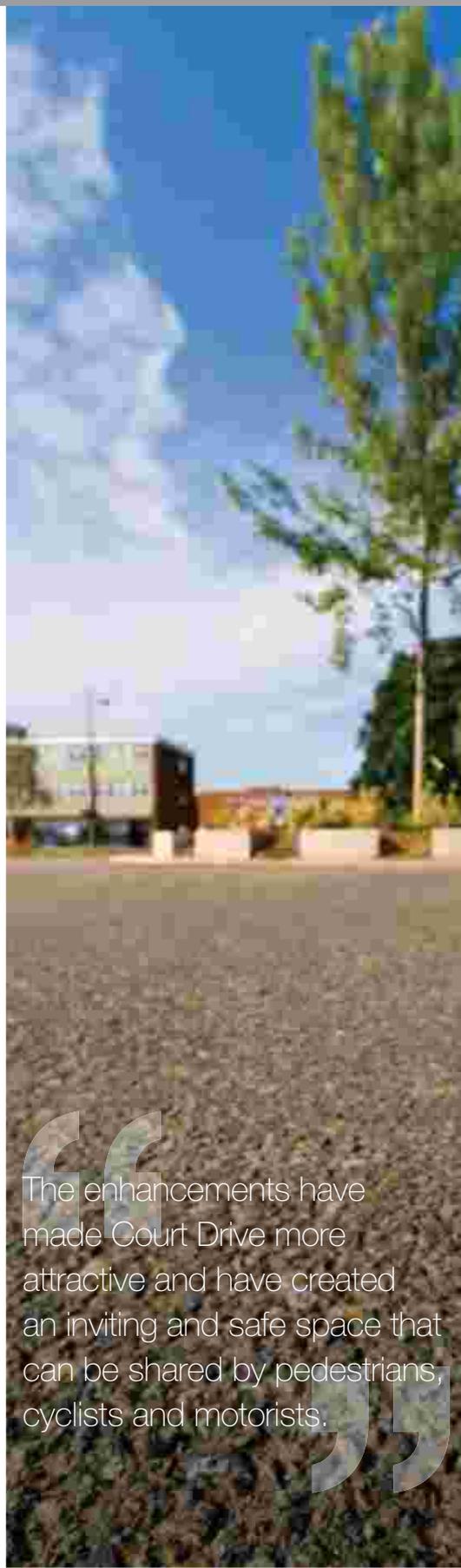


Supercolour® Exposed is a range of durable, coloured asphalt surface courses where the colour of the mix is provided by exposing the natural colour of the coarse aggregate used in the mix.

- Supercolour Exposed comprises a durable asphalt mix that uses a suitably coloured aggregate as a component in its mix recipe
- Aesthetically pleasing colour that is less brash than conventional pigmented asphalts
- Surface can be refreshed to rejuvenate the natural colour of the aggregate
- Different bituminous binders can be used within the mix including 40/60 pen grade bitumen and a range of polymer modified bitumens enabling Supercolour Exposed to be used to satisfy a range of traffic scenarios
- Based on conventional asphalt mixes the engineer can select and approve it using standard protocols
- The material is laid using conventional plant and equipment
- Colour does not require the expensive cleaning process demanded by conventional, pigmented materials
- In a range of colours: Gold, Red, Green and Gravel.



## Court Drive, Dunstable, Bedfordshire



Part of a major town centre improvement scheme in Dunstable, Bedfordshire, the development of Court Drive needed to embrace and reflect the concept of shared space and a 'clear streets' policy.

The aims of this scheme included the removal of any unwanted street furniture, the alteration of the road geometry to open up the street scape, improve access and improve safety.

Aggregate Industries, working in close consultation with the client, spent several weeks developing two proprietary asphalts to meet the very specific requirements of the project. Supercolour Exposed Gold was used in the general traffic route, while Supercolour Exposed Green was selected for the bus routes.

These specially developed Aggregate Industries asphalts have played a major role in making the Court Drive site more attractive, helping create a safe space that can be shared and enjoyed by pedestrians, cyclists and motorists alike.

“The enhancements have made Court Drive more attractive and have created an inviting and safe space that can be shared by pedestrians, cyclists and motorists.”

**Client:** Bedfordshire Highways

**Main contractor:** Amey Plc

**Contractor:** Aggregate Industries (Contracting)

**Materials:** Supercolour Exposed

# Asphalt

## product range

Superdrive®

Technical information

[www.aggregate.com/superdrive](http://www.aggregate.com/superdrive)



Superdrive® has been specifically designed for domestic drives to give an aesthetically pleasing finish whilst being tough enough to cope with the demands of wear and tear from shear forces exerted by the turning wheels of private vehicles.

- Aesthetically pleasing
  - Tough and durable
  - Highly resistant to scuffing and tearing from tight turning vehicles
  - 'Plus' range offers fuel resisting properties, and improved laying workability
- Can be pigmented in:
    1. **Standard:** basic level of pigmentation
    2. **Advanced:** increased level of pigmentation for deeper colour saturation
    3. **Extra:** uses a complementary coloured aggregate for a longer lasting colour effect.



# Superflex® base binder

## Technical information

[www.aggregate.com/superflex](http://www.aggregate.com/superflex)



Award winning Superflex® can be used as a base or binder course layer and combines the properties of high fatigue resistance with excellent deformation resistance. It is suited for use in a wide variety of applications and particularly where cracking is a problem.

- Excellent crack resisting properties means Superflex is the ideal material when overlaying concrete
- Excels in both deformation resistance and fatigue life over conventional mixtures
- Allows early and temporary trafficking where site restrictions prevent the application of a surface course prior to the removal of traffic management
- Impermeable, keeping out the unwanted action of trapped water
- High fatigue resulting in longevity and therefore reduced costs
- Specially selected polymer modified binders.

## Superflex base binder

### key performance properties

| Typical mechanical properties                                            | Superflex 100<br>14mm | Superflex50<br>14mm | Superflex100<br>20mm | 20mm<br>HDM/DBM<br>(40/60 NPG) | 50/20<br>HRA<br>(40/60 NPG) |
|--------------------------------------------------------------------------|-----------------------|---------------------|----------------------|--------------------------------|-----------------------------|
| UK wheel tracking @ 45°C<br>rut rate (mm/hr)                             | 0.4                   | 0.2                 | 1.1                  | 0.7                            | 5.0                         |
| UK wheel tracking<br>@ 60°C rut rate (mm/hr)                             | 1.04                  | 0.36                |                      |                                |                             |
| French wheel tracking<br>@ 60°C<br>(% @ 30000 cycles)                    | 4.38                  | TBR                 | TBR                  |                                |                             |
| UK stiffness @ 20°C,<br>2.5 Hz (MPa)                                     | 1865                  | 4148                | 2519                 | 4616                           | 2029                        |
| French stiffness @ 15°C,<br>2.5 Hz (MPa)                                 | 8580                  | 11,034              | 9299                 |                                |                             |
| UK fatigue @ 20°C<br>(cycles to failure @<br>200 micro strain)           | 190,000               | 75,000              | 60,000               | 20,000                         | 30,000                      |
| UK fatigue @ 20°C<br>(cycles to failure @<br>500 micro strain)           | 3500                  | 900                 | 3000                 | 380                            | 1300                        |
| French fatigue @ 10°C<br>25 Hz (cycles to failure @<br>1,000,000 cycles) | 202                   | 182                 | 148                  |                                |                             |

# Asphalt product range

## Superflex<sup>®</sup> surface course

### Technical information

[www.aggregate.com/superflexsurface](http://www.aggregate.com/superflexsurface)



Award winning range of polymer modified surface course materials for urban and rural areas that combines the properties of high fatigue resistance with excellent deformation resistance. It is suited for use in a wide variety of applications but particularly where there is a potential for cracking.

- Excellent crack resisting properties that mean Superflex is the ideal material when overlaying concrete
- Excels in both deformation resistance and fatigue life over conventional mixtures
- Impermeable, keeping out the unwanted action of trapped water
- A highly durable product.

### The Superflex surface course range

#### Superflex CARRIAGEWAY

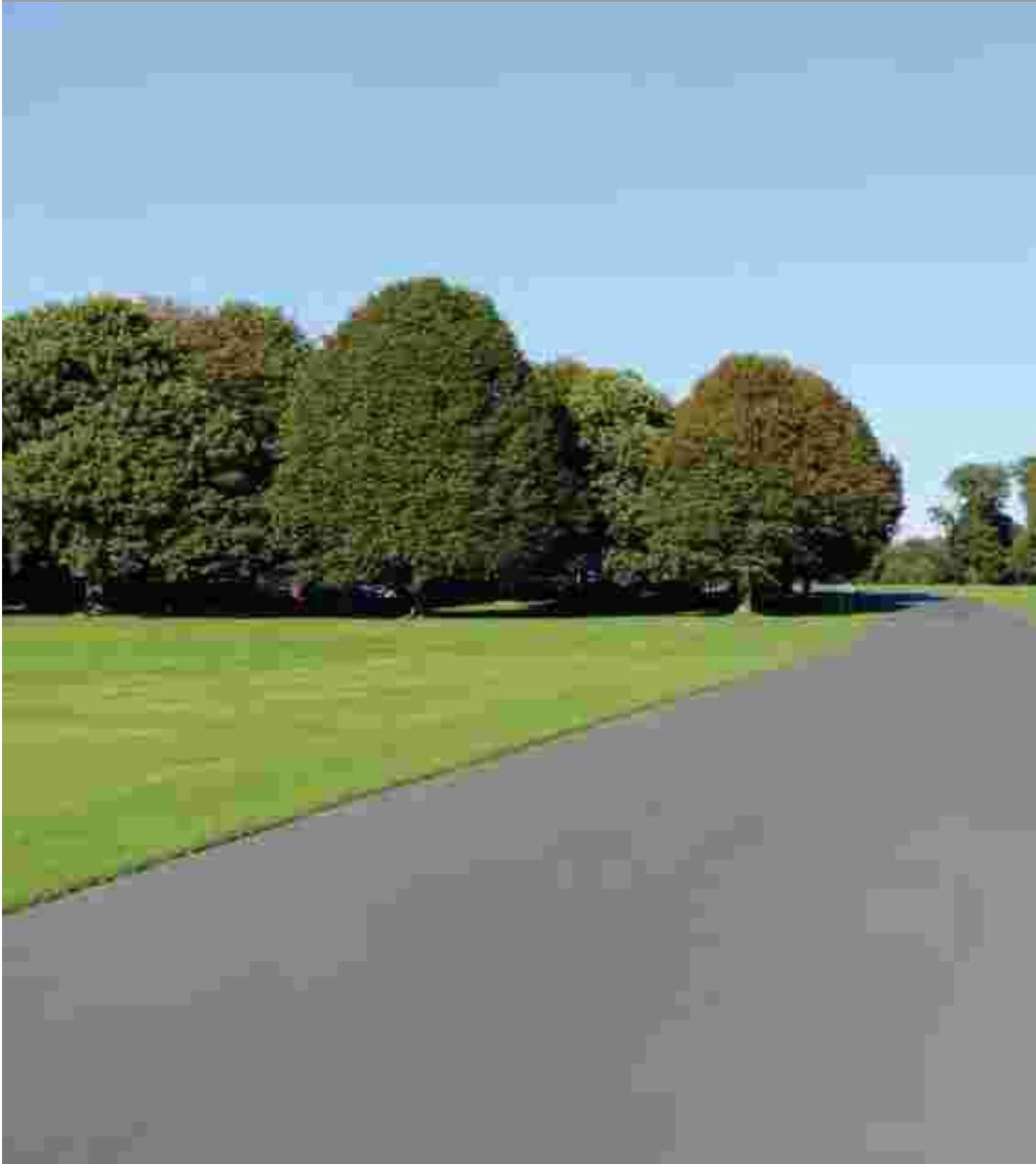
- Intentionally designed outside of the regime for HAPAS to allow a wider range of application and performance enhancement. In particular, where durability is placed as of higher importance to high textures
- When combined with an appropriate aggregate, in-service results from griptester surveys has shown that high levels of surface friction is realised and maintained
- It is available in 6mm, 10mm and 14mm aggregate sizes to cover layer thicknesses of between 15mm - 80mm.

#### Superflex72

- Developed to offer friction levels equivalent to that specified for high friction surfaces in highway use. The product achieves this through the use of a specific Aggregate Industries' aggregate source throughout the mixture
- Results from grip testing shows that not only are equivalent SCRIM values in excess of 0.55 realised but that they are maintained over a long period of time
- Superflex 72 laid by our contracting service can be provided with a 10 year scrim warranty.

# Asphalt case study

## Goodwood Festival of Speed



The Goodwood Festival of Speed takes place over the course of one weekend each summer and brings together most sports' best known cars and personalities to create the largest motoring garden party in the world.

For the rest of the year, the tracks on the Goodwood Estate are used to convey a range of different vehicles including cars and farm equipment. But, for three days during the summer, the estate roads are transformed into a race circuit and accommodate all kinds of vehicles from vintage motor cars to Formula One racing cars.

To help cope with these demands, the client required a durable material with no centre joint. We supplied 725 linear metres of Superflex, surfacing from the race starting point, through Park Straight and around Molecombe Corner.

Superflex is an exceptionally durable material and also displays good skid resistance, excellent fatigue properties and superb deformation resistance. Supplying two paving machines, We ran both in echelon to ensure there was no surface centre joint.



**Client:** Goodwood Estate

**Contractor:** Tidey & Webb Ltd

**Materials:** Superflex 10mm



# Asphalt product range

## Superhitex™

Technical information

[www.aggregate.com/superhitex](http://www.aggregate.com/superhitex)



A high performance 14mm polymer modified asphalt thin surface course designed for high speed, high traffic volume roads. It is a HAPAS approved product designed to give long term performance in a durable mixture.

- Noise reduction compared to HRA surface course exceeds 3 dB(A)
- Spray reduction
- Excellent resistance to permanent deformation
- Whole life performance
- The selection of a polymer modified binder provides minimised low temperature susceptibility, particularly effective low temperature fatigue resistance and satisfactory bitumen/aggregate adhesive qualities in the presence of water.

### Superhitex

key performance properties

| Test parameter                                                                               | Performance level achieved | Requirement             |
|----------------------------------------------------------------------------------------------|----------------------------|-------------------------|
| Texture depth<br>Untrafficked (mm)<br>after two year trafficking (mm)                        | 3                          | ≥1.5<br>≥1.0            |
| Wheel tracking<br>Rate (mean/max individual) (mm/hr)<br>Rut depth (mean/max individual) (mm) | 3                          | ≤5.0/≤7.5<br>≤7.0/≤10.5 |

# Superlasting™

**Technical information**  
[www.aggregate.com/superlasting](http://www.aggregate.com/superlasting)



**Life®**  **24%<sup>†</sup>** reduction in CO<sub>2</sub>



Superlasting™ asphalt is a patented<sup>1</sup> sustainable, micro foamed mix process that provides the engineering performance of hot mix asphalt yet is produced and laid at reduced temperatures thereby extending the predicted service life.

- Enhanced durability and service life through reduced binder ageing
- Achieves high stiffness earlier providing the opportunity for reduced construction times and therefore traffic congestion
- 24% reduction in the carbon footprint<sup>†</sup>
- Equivalent stiffness and permanent deformation to hot mix asphalt
- Good workability and compactability at reduced rolling temperatures
- Laid with conventional surfacing equipment and laying techniques
- Eliminated nuisance fumes
- Produced to BS EN Standard mix descriptions therefore no client departure required
- CE Marked for compliance with CPR
- Can be manufactured as a base, binder or surface course.

## Superlasting enhanced durability

| Ageing of the binder | 40/60 pen (AC 20)    |                   | 100/150 pen (AC 20)  |                  |
|----------------------|----------------------|-------------------|----------------------|------------------|
|                      | Superlasting asphalt | Standard hot mix  | Superlasting asphalt | Standard hot mix |
| Penetration (dmm)    | 46                   | 37*               | 108                  | 79               |
| Softening point (°C) | 52.6                 | 55.0 <sup>†</sup> | 43.8                 | 50.4             |

\* Typical values.  
<sup>†</sup> Calculated using the asphalt Pavement Embodied Carbon Tool (asPECT).  
<sup>1</sup> Patent Number: GB 2472995 granted on 11th Sept 2013.

# Asphalt product range

## Superpatch®

Technical information

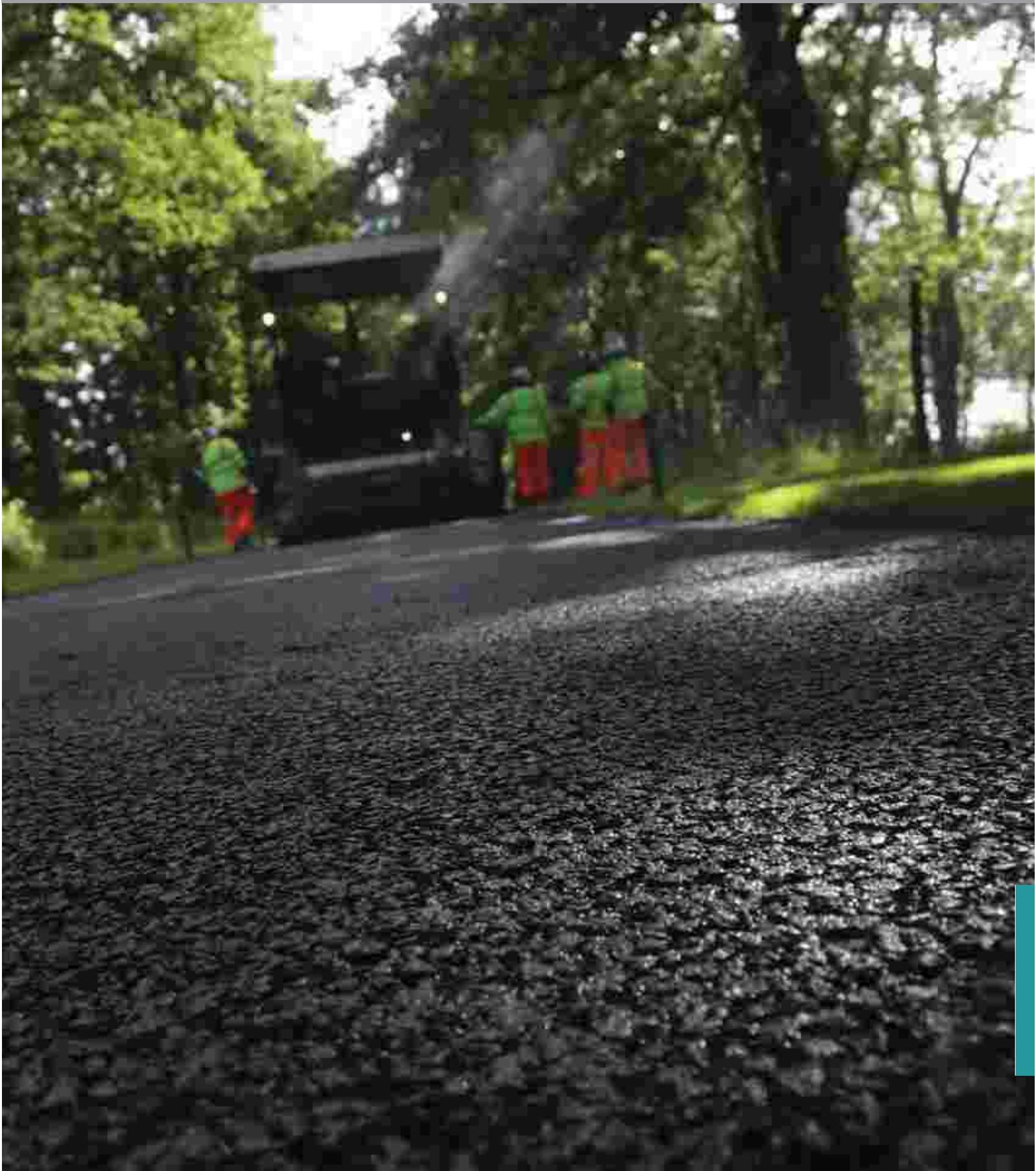
[www.aggregate.com/superpatch](http://www.aggregate.com/superpatch)



A cold laid range of fluxed asphalt materials for temporary reinstatement work. The product is supplied in grades for day working and extended storage.

- Established solution for utility companies and highway authorities
- Uses most effective flux materials
- Reliable solution for emergency repairs
- Bagging of Superpatch materials increases the convenience aspect, particularly for the “emergency” utility, Builders Merchants and Do It Yourself sectors.





# Asphalt

## product range

SuperSafedress™

Technical information

[www.aggregate.com/supersafedress](http://www.aggregate.com/supersafedress)



A HAPAS approved ultra thin surfacing asphalt material that can be laid 12mm thick incorporating polymer modified technology. The material is installed by pavers that incorporate an integral spray bar for applying a polymer modified bond-coat immediately before the asphalt layer.

- Polymer modified bond-coat forms a waterproof seal to the existing surface and creates a strong interlocking bond as the bond-coat migrates into the matrix of the material holding it in place
- Impermeable, untrafficked bond-coat
- Reduced traffic noise
- Can remove ruts from pavement in one pass
- Can be trafficked within 15 minutes
- Speed of application up to three times quicker than for other thin surfacings
- Can be used as an overlay option.

### SuperSafedress

key performance properties

| Text parameter                    | Performance level | Requirement |
|-----------------------------------|-------------------|-------------|
| Texture depth (mm)                | 3                 |             |
| Untrafficked (mm)                 |                   | ≥1.5        |
| After 2 years of trafficking (mm) |                   | ≥1.0        |

# SuperSafepave™

**Technical information**  
[www.aggregate.com/supersafepave](http://www.aggregate.com/supersafepave)



A HAPAS approved thin surfacing asphalt material that can be laid 20mm thick incorporating polymer modified binder technology. The material is installed by pavers that incorporate an integral spray bar for applying a polymer modified bond-coat immediately before the asphalt layer.

- Substrate cracks sealed by effective bond-coat application
- Untrafficked bond-coat
- Enhanced spray reduction characteristics
- Noise reduction
- Speed of application: up to three times quicker than for other thin surfacings
- This system can provide an impermeable layer due to the bond-coat
- SuperSafepave can overlay the existing surface, and regulate rutted or deteriorated surfaces
- Can be trafficked more quickly than conventional thin surfacings
- Excellent friction qualities.

| SuperSafepave                        |                                                                 |             |
|--------------------------------------|-----------------------------------------------------------------|-------------|
| key performance properties           |                                                                 |             |
| Test parameter                       | Performance level(2)                                            | Requirement |
| Texture depth (mm)                   | 3                                                               |             |
| Untrafficked (mm)                    |                                                                 | ≥1.5        |
| After 2 years of trafficking (mm)    |                                                                 | ≥1.0        |
| Wheel tracking                       | 3                                                               |             |
| Rate (mean/max individual) (mm h-1)  |                                                                 | ≤5.0/≤7.5   |
| Rut depth (mean/max individual) (mm) |                                                                 | ≤7.0/≤10.5  |
| Test                                 | Method                                                          | Mean result |
| Noise:<br>RSIH [dB(A)]               | Statistical pass-by method.<br>Guidelines document appendix A.8 | -9.57       |

# Asphalt

## case study

### Ormiston Sir Stanley Matthews Academy, Stoke-on-Trent



Built on the site of the old school, the Ormiston Sir Stanley Matthews Academy in Stoke-on-Trent is housed in a brand new state of the art, multi-million pound building, a product of the Government backed Building Schools for the Future (BSF) programme.

Aggregate Industries called upon its in-house plant network to supply asphalt for the new sports courts at the academy, with the main source of supply provided by our Haughmond Hill asphalt plant.

In addition, our plant at Doncaster supplied the sports faculty of the academy with Supersport Red. Free draining and available in a range of surface colours, this specialist range of asphalt products has been designed to meet the very specific requirements of tennis courts and multi-use games areas (MUGAs).

As well as asphalt, we supplied other materials including dry stone aggregates to help with the ground works, proving that we are a truly integrated solution provider for construction projects.

**Client:** Stoke-on-Trent City Council

**Architect:** Associated Architects

**Main Contractor:** Wates Construction

**Contractor:** Interclass Surfacing Ltd

**Engineer:** BJB Consultancy





# Asphalt product range

## Supersport®

Technical information

[www.aggregate.com/supersport](http://www.aggregate.com/supersport)



Supersport® is a range of asphalt products designed to meet job specific requirements and offer a range of benefits for tennis courts and multi-use games areas (MUGAs). A selection of binders are used, these include both normal penetration grades, polymer modified grades and our 'Plus' binder, to provide job specific requirements and benefits. Supersport can also be produced as a coloured product.

### Supersport range

#### Supersport Tennis

- Supersport Tennis is a fast draining material that is designed to meet the stringent demands of this sport
- Fully compliant with the requirements of the Lawn Tennis Association and SAPCA, and is available with our 'Plus' binder that allows for increased workability.

#### Supersport MUGA

- Supersport MUGA is the ideal product for multi-use games areas where a variety of activities including basketball, hockey, football and netball are played

- Available with the 'Plus' enhancement if required
- Fully compliant with the requirements of SAPCA.

#### Supersport binder course

- Supersport binder course materials are available in 10, 14 and 20mm aggregate sizes, enabling the contractor to select the material best suited to their application. These are the recommended binder course materials for our Supersport surface course options.

## Supersport

key performance properties

|                                                                        | Tennis court surface course | MUGA surface course | Binder course  |
|------------------------------------------------------------------------|-----------------------------|---------------------|----------------|
| Aggregate size                                                         | 6mm                         | 6mm                 | 10, 14 or 20mm |
| Nominal layer thickness                                                | 30mm*                       | 30mm*               | 40 - 80mm**    |
| Water infiltration rate<br>EN 12616, surfaces for sports areas (mm/hr) | ~ 9800                      | ~ 5600              | ~ 15,000       |

\* When laid on an appropriate binder course

\*\* Dependent on both method of construction and foundation requirements

# Superstrong™

**Technical information**  
[www.aggregate.com/superstrong](http://www.aggregate.com/superstrong)



High stiffness, resilient asphalt for base and binder course layers. Unlike EME2 it can be laid on top of a conventional Type 1 subbase. The product takes advantage of advanced binder and mixture technology to provide a superior load-bearing, impermeable structural layer.

- Polymer modified binder for enhanced fatigue resistance
- Adds strength to pavements
- Very high rut resistance
- Durability through ease of laying, mat uniformity and low voids.
- Dense impermeable asphalt for greater resistance to water penetration

## Superstrong

key performance properties

| Test property                                                      | Typical values |
|--------------------------------------------------------------------|----------------|
| Binder richness modulus (K): Binder content                        | ≥3.4           |
| Air voids content                                                  | ≤6.0%          |
| Duriez test (water sensitivity - after and before immersion ratio) | >0.75          |
| Rutting test (60°C, 30,000 cycles on 100mm slab)                   | <7.5%          |
| UK wheel tracking @ 60°C rut depth/rut rate                        | 1.3mm/0.5mm/hr |
| Indirect tensile stiffness modulus (20°C, 125 ms loading time)     | ≥5.5 GPa       |

# Asphalt product range

## Superthin™

**Technical information**
[www.aggregate.com/superthin](http://www.aggregate.com/superthin)


A HAPAS approved asphalt thin surface course material available in 6mm and 10mm. Designed to fulfil the requirements and deliver the performance of a modern thin surfacing used in high and low speed heavily trafficked roads.

- High levels of rut resistance
- Noise reduction properties
- Spray reduction
- Thin construction to maximise the conservation of natural resources.

### Superthin

key performance properties

#### 10mm

| Test parameter                       | Performance level | Requirement |
|--------------------------------------|-------------------|-------------|
| Texture depth                        | 3                 |             |
| Untrafficked (mm)                    |                   | ≥1.5        |
| After 2 years of trafficking (mm)    |                   | ≥1.0        |
| Wheel tracking                       | 3                 |             |
| Rate (mean/max individual) (mm/hr)   |                   | ≤5.0/≤7.5   |
| Rut depth (mean/max individual) (mm) |                   | ≤7.0/≤10.5  |

#### 6mm

| Text parameter                       | Performance level(1) | Requirement |
|--------------------------------------|----------------------|-------------|
| Texture depth                        | 3                    |             |
| Untrafficked (mm)                    |                      | ≥1.0        |
| After 2 years of trafficking (mm)    |                      | ≥0.7        |
| Wheel tracking                       | 3                    |             |
| Rate (mean/max individual) (mm/hr)   |                      | ≤5.0/≤7.5   |
| Rut depth (mean/max individual) (mm) |                      | ≤7.0/≤10.5  |

# Supreme™

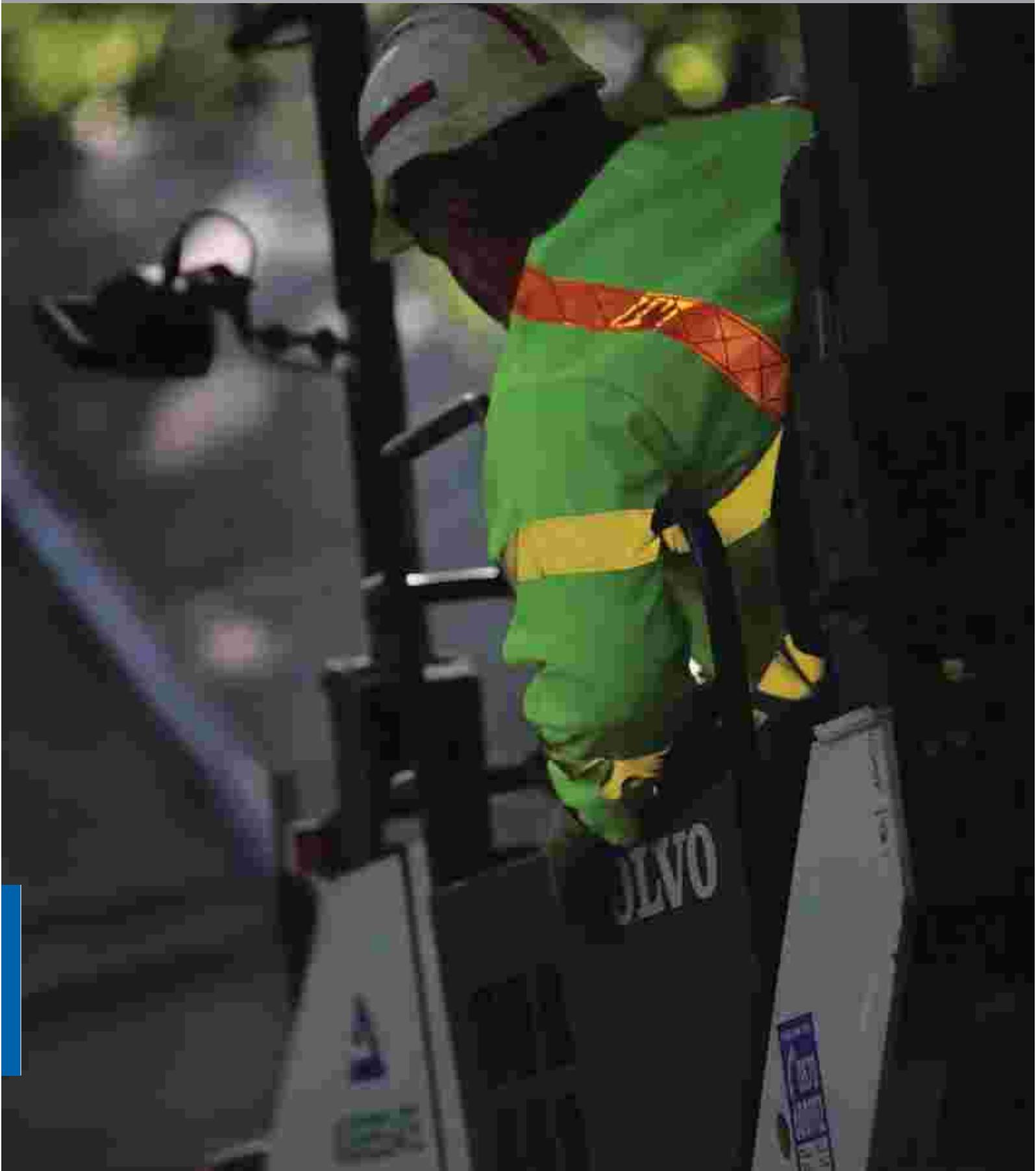
**Technical information**  
[www.aggregate.com/supreme](http://www.aggregate.com/supreme)



A highly compactable, very strong and durable asphalt, for use in very heavily loaded areas such as city centre road junctions, bus lanes and stations, ports and heavy industrial yards.

- Highly compactable
  - Very high rut resistance
- Polymer modified binder with softening point above 75°C
  - Dense impermeable asphalt allowing early trafficking.

| Supreme                                                             |         |
|---------------------------------------------------------------------|---------|
| key performance properties                                          |         |
| Mechanical properties (typical)                                     | Supreme |
| BS EN 12697-22: 2003 @ 60°C in water proportional rut depth (%)     | 1.75    |
| BS EN 12697-22: 2003 @ 60°C in water rut depth (mm) RDw 1000 cycles | 0.87    |
| UK wheel tracking @ 60°C rut rate (mm/hr)                           | 0.51    |
| UK wheel tracking @ 60°C rut depth (mm)                             | 1.5     |
| Vacuum repeated load axial test (vRLAT) max strain (%)              | 0.24    |
| UK stiffness @ 20°C 2.5 Hz (MPa)                                    | 8,500   |



The Aggregate Industries group offers an extensive range of products and services to the construction industry.

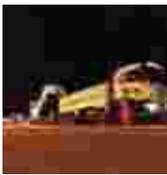


### Concrete

We offer a complete range of ready-mixed concretes and screeds, operating from over 70 sites. We also have an operation that caters for smaller collect loads.

**Tel:** 01283 714187

**Email:** [concrete@aggregate.com](mailto:concrete@aggregate.com)



### Asphalt

We are a leading supplier of a full range of coated materials with over 40 locations in the UK, serving major conurbations, including sites for collect business.

**Tel:** 0844 557 8396

**Email:** [asphalt@aggregate.com](mailto:asphalt@aggregate.com)



### Commercial landscaping

Flag paving, block paving and kerb products are available in both concrete and natural stone. Surface water drainage products are also part of a wide ranging portfolio.

**Tel:** 01335 372222

**Email:** [landscaping@aggregate.com](mailto:landscaping@aggregate.com)



### Contracting

We strengthen our construction materials portfolio through our involvement in infrastructure, surfacing and civil contracting works.

**Tel:** 01530 510066

**Email:** [contracting@aggregate.com](mailto:contracting@aggregate.com)



### Garden landscaping

Bradstone is one of the UK's leading ranges of natural and reconstituted stone paving, walling, edging and coping, block paving and decorative aggregates.

**Tel:** 01335 372222

**Email:** [bradstone.garden@aggregate.com](mailto:bradstone.garden@aggregate.com)



### Building products

We produce decorative masonry building blocks, reconstructed stone walling, architectural cast stone dressings and roofing slates.

**Tel:** 01285 646884

**Email:** [building.products@aggregate.com](mailto:building.products@aggregate.com)



### Aggregates

We supply crushed rock, sand and gravel, stone and fill materials for construction. These can be delivered by road, rail or marine transport. We also produce silica and specialist sands.

**Tel:** 0844 557 8393

**Email:** [aggregates@aggregate.com](mailto:aggregates@aggregate.com)



### Cementitious materials

We import grey and white cement from Northern Europe and supply Fly Ash to ready-mixed, precast, mortar, screed and render companies.

**Tel:** 01530 512000

**Email:** [cementitious@aggregate.com](mailto:cementitious@aggregate.com)



### Overseas

Aggregate Industries Overseas supplies high quality aggregates to Europe from bases in the UK, Poland, Germany, Norway and Latvia.

**Tel:** 01530 512025

**Email:** [overseas.sales@aggregate.com](mailto:overseas.sales@aggregate.com)

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