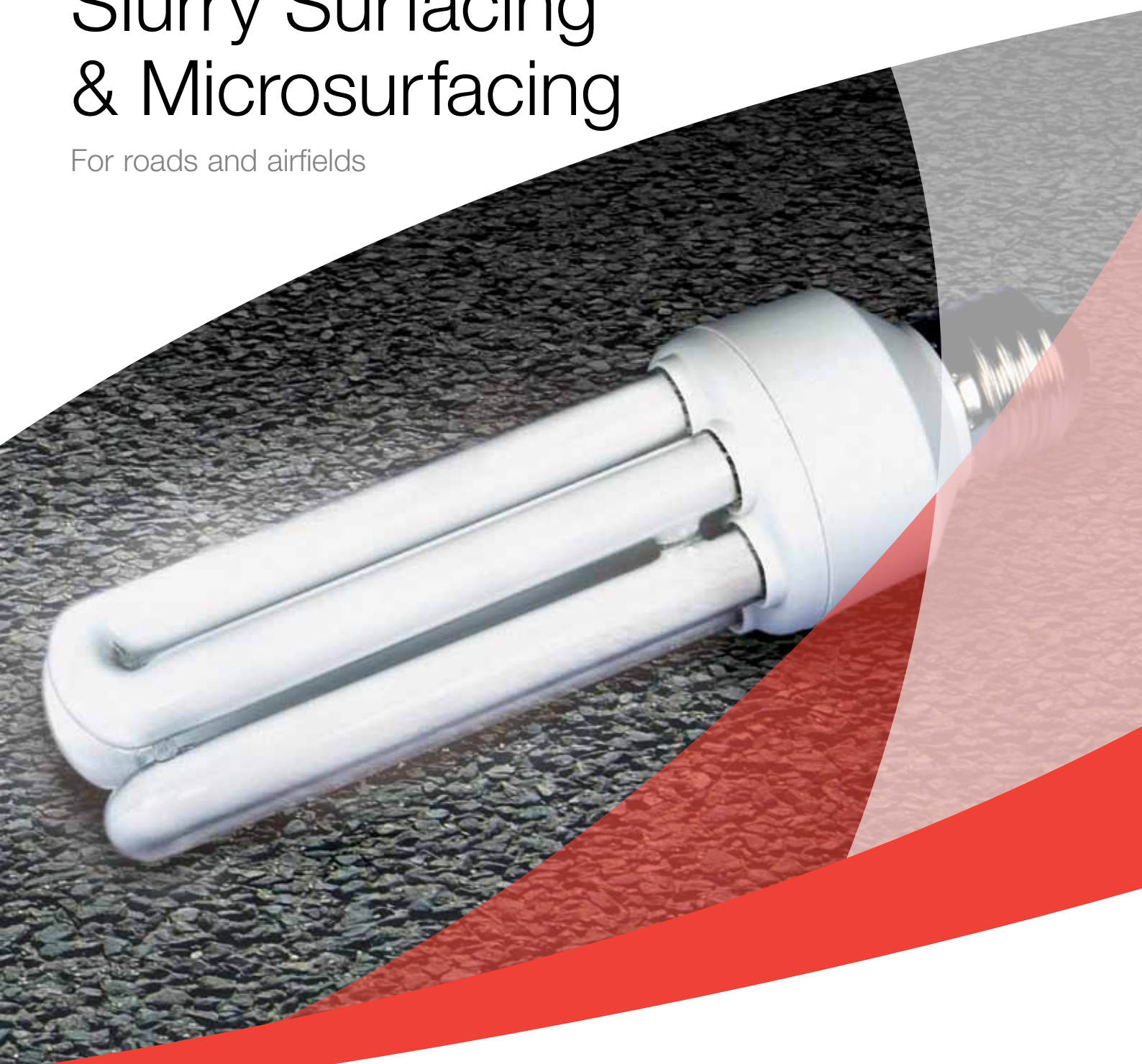
Energy Saving Slurry Surfacing & Microsurfacing

For roads and airfields



Colas | we go further

Colas Delivering Sustainable Construction Solutions

Colas Limited operate throughout the UK as a service provider to the highway and airfield sectors. A subsidiary of the International Colas Group, Colas can draw upon the resources and expertise of one of the worlds leading organisations for construction and maintenance within the roads and airfields industry.

Research, development and innovation are firmly embedded within the Colas culture and have proven to be an integral part of Colas' growth strategy. Development of our products and operational processes are tailored towards meeting the changing needs of our clients.

Planning, scheduling, procuring and addressing the maintenance of transport infrastructure has seen an increasing pressure to embrace and incorporate the issue of sustainability within recent years. In reality Colas' cold applied Microasphalt processes have been long established and practised over the past 40 years. However, a new emphasis on sustainability and environmental concerns, brought on by a shift in governmental agenda, promises that the issues cannot be ignored.

Recognising the importance of sustainability Colas has further embedded a culture of innovation, sustainability and continuous research and development into all of its business activities. At present the Colas Group research and development expenditure exceeds 100m Euros; leading to pioneering innovative solutions such as Ralumac HT, a cold applied high texture surfacing and the environmental calculator, software that assess the green credentials of road surfacing methods on a project by project basis.

Colas are a leader in cold emulsion technology and are at the forefront of in-situ processes worldwide.

Rejuvenating Cost Effective Carriageway Treatments

Slurry Surfacing Microasphalt

- **Reduced green house Gas and CO2 emissions.**
- **Reduced energy consumption, in the total construction cycle when compared to conventional road surfacing treatments.**
- **Reduced time on site means less road space occupation and minimal traffic disruption.**
- **Waste reduction - the percentage of waste produced is negligible, avoiding unnecessary landfill.**
- **Reduced lorry movements and minimised disruption to local communities as all materials are mixed in-situ.**

With increasing focus on sustainable procurement Colas' Microasphalt surfacing solutions offer a cold applied, low carbon alternative, compared to conventional surfacing treatments. By reducing the output of energy, emissions and waste, Colas are able to aid clients in significantly lowering their carbon footprint.

Colas' Microasphalt process offers a range of versatile road maintenance materials, depending on the clients' specifications; Bitutex, Bitumac and Ralumac all offer unique engineering and application benefits. Using bespoke plant and equipment all materials are combined in-situ and applied on any given surface. The range of materials offered allows the filling of any ruts and deformations in a single pass.

Accredited to the National Highway Sector Scheme 13 Colas' Microasphalt process is recognised for its enhanced characteristics and engineering qualities. The design of the application provides a low noise output, improved appearance and skid resistance, and a high resistance to rutting. Through forming a protective sealant over the existing surface, the process offers clients enhanced durability and a uniformed finish.

Bitutex & Bitumac

Bitutex

A controlled setting, machine applied slurry surfacing, Bitutex offers:

- **A veneer sealing carpet of dense consistency**
- **Excellent adhesion to a wide variety of surfaces**
- **Good workability and durability**
- **Quickly resistant to rain**
- **Trafficking within 15 to 20 minutes.**

Bitutex is a low cost, high quality, cationic slurry surfacing veneer carpet of coated fine aggregate. It is ideal for housing estate roads and car parks where it provides a clean, dense, sealed surface as an alternative to surface dressing. It is also suitable for airfield use.

It can also be used to restore mechanical stability to worn surface dressing or restore a fretted macadam carpet. Bitutex can be used as a pad coat for surface dressing, providing a mechanical key on hard concrete, macadam or asphalt.

Use of the Colas Midi Applicator machine ensures that residential estate roads are treated with little or no handwork and a consistent, high quality finish can be given to bellmouths, turning circles and narrow lanes.

For airfields Bitutex is an economical means of sealing runways and taxiways which will significantly reduce FOD risk. Bitutex is also widely used for roads and parking areas.

Bitumac

A cost effective solution to the problem of worn pavements, Bitumac high performance road surfacing offers:

- **Rugous surface with improved skid resistance**
- **Neat uniform finish**
- **Minimal loose chippings**
- **Reduced traffic noise**
- **Trafficking within 20-30 minutes.**

Applied in a single coat, Bitumac is ideal for use where a more hard wearing and longer lasting surface is required than that provided by conventional slurry surfacing materials.

Suitable sites include urban and rural roads and residential areas, particularly where these locations are subjected to a heavier than normal traffic loading - such as that experienced along bus routes or outside schools.

Bitumac is also effective when used to cover unattractive reinstatements, patches and worn surface dressing.

Use of the Colas Midi Applicator machine ensures that residential estate roads are treated with little or no handwork and a consistent, high quality finish can be given to bellmouths, turning circles and narrow lanes.

Before

After

Technical Information

Carriageways, Airfields & Car Parks

PROCESS	BITUTEX	BITUMAC
DEFINITION	Controlled setting, machine applied cationic slurry surfacing laid to BS918.	Cold-applied, polymer modified, dense, graded road surface treatment.
AGGREGATE	Suitable crushed rock/grit stone.	Selected coarse 6mm and 8mm aggregate and fine aggregate.
PROPERTIES	Min PSV: 55-62	Min PSV: 62
FILLER/ADDITIVES	OPC	OPC
TEXTURE DEPTH		Initial: typically>1mm.
THICKNESS AND APPLICATION RATES OF MATERIAL	Thickness will vary in accordance with individual site conditions and application rates of spread. Nom. Thickness: 3mm 6mm Coverage Rate: 4-6kg/m^2 7-10kg/m^2	Typically 12kg/m^2 with thickness variable from 8mm to 10mm according to site conditions and application rates of spread.
COLOUR	Black	Black
APPLICATION	Cold applied to the existing surface via self-propelled, purpose-built machinery. In locations where handwork is necessary, the material's controlled setting time ensures good workability.	Cold applied to the existing surface via self-propelled, purpose-built machinery. In locations where handwork is necessary, the material's controlled setting time and dense consistency ensure uniformity in appearance and performance.
SUITABLE SITES	Adheres to a wide variety of surfaces. Can be applied to flexible and concrete road surfaces.	Adheres to a wide variety of surfaces. Can be applied to flexible and concrete road surfaces.

Ralumac

Ralumac 1000

A polymer modified, cold applied microasphalt suitable for more restricted sites, Ralumac 1000 offers:

- **Long life expectancy**
- **Increased programming flexibility**
- **Minimal disruption**
- **Trafficking within 5 to 20 minutes**
- **Proven versatility.**

Based on well-tried German technology and extensive UK contracting experience, Ralumac 1000 fills ruts, restores profile and treats a deteriorating road surface.

Applied by the Colas Midi Applicator machine, Ralumac 1000 is particularly appropriate for sites with limited access or restricted turning space. Residential estate roads can be treated with little or no handwork and a consistent, high quality finish can be given to bellmouths, turning circles and narrow lanes.

Measuring only 9.75m long by 2.2m wide with an articulated laying box, the Midi Applicator carries all the necessary components, mixes them on site and applies the material to the road surface.

Ralumac 2000

Ralumac 2000 is suitable for a wide variety of locations and will adhere to most surfaces. It is particularly appropriate for high speed sites. Ralumac 2000 is applied through an articulated laying box, designed and built in-house. This has the capability of applying material in widths of 2.7m. Longitudinal joints are kept to a minimum and handwork is reduced. This allows the surfacing to be applied more quickly and uniformly.

Fibreglass
The addition of Fibreglass within the slurry surfacing and Ralumac processes can be utilised to reduce reflective cracking.

Meshtrack
Meshtrack is a woven hexagonal wire netting manufactured to cure cracked and crazed roads. Used in conjunction with Ralumac the road is first treated in one or more coats to provide a regulated asphalt layer. Meshtrack is then rolled out onto the surface and secured with hook bolts and nails. Ralumac is then applied in a further coat to form a steel reinforced surface which is strong and highly durable.

Ralumac HT

At the forefront of Microsurfacing technology, Ralumac HT offers:

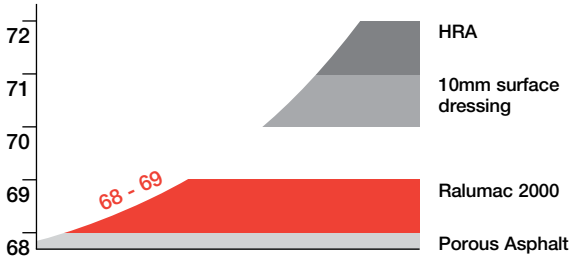
- **Initial texture depth 2.00mm**
- **The ability to fill ruts and deformations in one pass**
- **Very high resistance to rutting**
- **Better appearance, improved riding quality and low noise characteristics**
- **Reduced site occupation time with less traffic congestion and disruption.**

Ralumac HT system is a cold applied surfacing designed and developed by Colas Limited. With enhanced material specification and incorporating fibres it is the ideal solution for high speed roads which require a high texture, long lasting and stable surface.

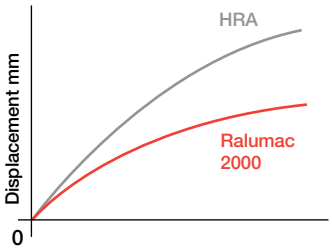
Application

Ingredients are mixed and laid by a purpose built mobile application unit. Two layers are applied, the base layer being a standard Ralumac 2000 to regulate the existing surface followed by the top wearing course being the Ralumac HT.

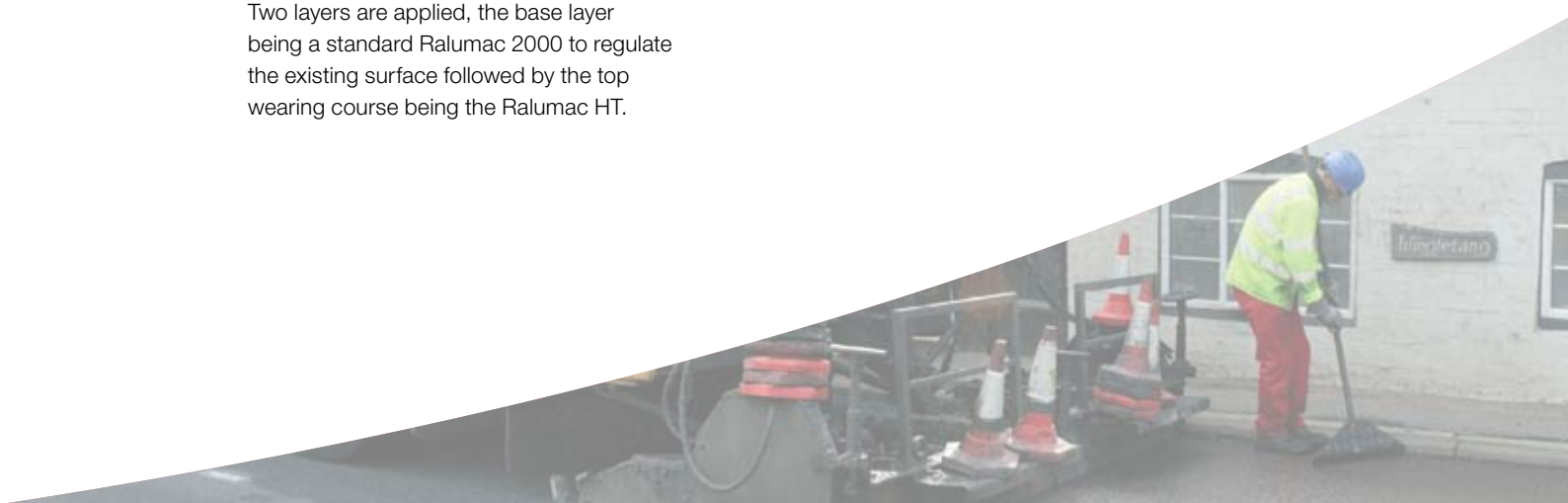
dB (A) Noise Characteristics



Wheel Tracking Rate



Rut Resistance:
Wheel tracking rates of 16mm thick sample @ 45ºC (tested in accordance with BS598, draft):
Rigid base: 0.21mm/hour
Flexible base: 0.69mm/hour



Technical Information

Carriageways, Airfields & Car Parks

PROCESS	RALUMAC 1000	RALUMAC 2000	RALUMAC HT
DEFINITION	Cold applied, polymer modified dense microasphalt.	Cold applied 0/6mm wearing course which incorporates a polymer modified bitumen emulsion and fibres with high quality aggregates.	Cold applied 6mm - 10mm stone and fine aggregates wearing course which incorporates a polymer modified emulsion and fibres.
AGGREGATE	Selected coarse aggregate and high quality, crushed fine aggregate.	High quality course and fine aggregates blended to a Colas Limited proprietary grading specification.	High quality course and fine aggregates blended to a Colas Limited proprietary grading specification.
PROPERTIES	Min PSV coarse aggregate: 60. Typical SRV from day 1: 55 to 65	Min PSV: 62. Typical SRV: 65 to 70	Min PSV: 62. Typical SRV: 65 to 70
FILLER/ADDITIVES	OPC	OPC and fibre	OPC and fibre
TEXTURE DEPTH	Initially typically>1.5mm before traffic.	Type: positive Initial: after trafficking>1.5mm.	Type: positive Initial: after trafficking>2mm.
THICKNESS AND APPLICATION RATES OF MATERIAL	Typically 24kg/m^2 approx. equal to 15mm nominal thickness, but will vary depending on the shape of the carriageway or minor roads.	Typical thickness at 24kg/m^2 equal to 15mm depending upon the nature and shape of the existing road surface and site conditions. Coverage rates will vary accordingly. Colas 24 month guarantee applies to all multi layer and single layer sites where specified or agreed following site inspection.	Typical thickness vary from 15mm to 20mm depending upon the nature and shape of the existing road surface and site conditions. Coverage rates will vary accordingly. Colas 24 month guarantee applies to all multi layer and single layer sites where specified or agreed following site inspection.
COLOUR	Black	Black	Black
APPLICATION	Cold applied to the existing surface via self-propelled, purpose-built machine.	Via self-propelled, purpose-built machine. Laying box is articulated and includes variable width and hydraulic thickness control.	Via self-propelled, purpose-built machine. Laying box is articulated and includes variable width and hydraulic thickness control.
SUITABLE SITES	Heavily trafficked roads, busy urban thoroughfares, rural lanes, housing estates, residential streets, roundabouts and motorway hard shoulders. Will adhere to asphalt and concrete pavements, brick and cobblestones, concrete and wooden blocks.	Heavily trafficked roads, busy urban thoroughfares, rural lanes, housing estates, residential streets, roundabouts and motorway hard shoulders. Suitable for carriageways of rigid or flexible construction and will adhere to asphalt and concrete pavements.	Heavily trafficked principal routes which require increased texture depth.

Regional Office
Colas Limited
Dysart Road
Grantham
Lincolnshire
NG31 7LG
T: 01476 404200
F: 01476 404215
E: info@colas.co.uk

Part of the International Colas Group

Colas Limited, Wallage Lane
Rowfant, Crawley
West Sussex RH10 4NF
T: 01342 711000
F: 01342 711199
E: info@colas.co.uk

www.colas.co.uk

Colas | we go further