



Footway slurry surfacing being carried out

Slurry surfacing

In the latest article from the Road Surface Treatments Association (RSTA), chief executive Howard Robinson discusses the area of slurry surfacing

Slurry surfaces incorporating micro-surfaces are cold-applied, thin bituminous surface courses using bitumen emulsion binders and fine graded aggregates with fillers and other additives. There are two broad categories; thin slurry surfaces used for treating footways and thicker polymer modified surfaces called micro-surfacing or micro-asphalt for carriageways.

Where can they be used?

These materials can be used to restore the surface condition on roads, footways, cycleways, car parks, playgrounds, central reservations, traffic islands and amenity areas.

Slurry surfacing is ideal for any type of surfacing receiving mainly pedestrian traffic e.g. footways and cycleways.

Micro surfacing is ideal for use on urban roads and roads carrying up to 250 commercial vehicles per lane per day. Some products have a HAPAS certificate which enables them to be used on more heavily trafficked roads.

What is the difference between slurry and micro surfacing?

Slurry surfacing is normally a single coat application laid mechanically or manually up to a dried film thickness of 6mm. Micro-surfacing incorporates a polymer modified bitumen emulsion and is often a two-coat application laid mechanically or manually to a maximum dried film thickness of typically 15mm.

These materials are usually referred to as micro-asphalts.

What are the benefits?

- These treatments are very cost effective compared to conventional resurfacing
- Restores surface texture and improves skid resistance
- Rapid curing characteristics – some micro-surfacing can receive traffic about 20 minutes after installation
- High daily outputs mean minimal traffic disruption and congestion
- They seal the surface preventing ingress of water into the pavement structure thereby helping to minimise pothole formation
- Suitable for overlay on a wide range of existing surfaces
- Micro-surfacing has the ability to reshape and re-profile existing surfaces by filling shallow defects such as potholes, cracks and ruts
- Able to provide a smooth or textured finish
- Available in a range of colours providing an aesthetically pleasing finish.

When to use slurry and micro-surfaces

- Before the footway or carriageway surface deteriorates to the stage where expensive major patching and/or reconstruction is required
- Before surface skidding levels fall below the investigatory level for the class of road in question
- When the road surface profile needs minor restoration.

Cost effectiveness

- Slurry surfacing costs in the region of £2.50m² and micro-surfacing costs £3 to £4m², towards the higher end if the process involves surface regulating and ironworks
- They also provide good value offering an average service life in excess of 10 years or a cost life index of less than £0.40 per year.

Some important considerations

- Slurry surfaces and micro-surfaces can be specified in accordance with the specification for highway works clause 918
- These materials are recognised as products regulated by the Construction Products Regulations (CPR) and European Standard BSEN 12273. Contractors must now provide a CE mark and a declaration of performance for each type of slurry surfacing and micro-surfacing product placed on the market
- Further guidance is available within the Design Manual for Roads and Bridges (DMRB) HD37
- These products are designed by the contractor to meet the requirements of the road surface on which they are laid
- The work should be carried out by an experienced contractor who can demonstrate a good track record of high quality work
- All contractors who are members of the RSTA have achieved accreditation to the national highway sector scheme 13 for the supply and application of surface treatments to road surfaces. ➔

Micro-surfacing is usually used on urban roads



- ➔ Sector schemes are competency schemes aimed at ensuring the workforce have been properly trained and qualified
- ➔ Good “aftercare” is essential. This, together with the correct material design will minimise the risk of early life failure.

Environmental considerations

- ➔ These products have a relatively low carbon footprint. RSTA in association with the University of Nottingham have published a suite of carbon calculators for measuring the carbon footprint on schemes using surface treatments including slurry surfacing and micro-surfacing
- ➔ These new carbon tools are called PROTECT (Pavement Road Treatment Embodied Carbon Tool) and have been endorsed by ADEPT
- ➔ The rapid speed of the process means that disruption to road uses, local businesses and emergency services is minimised
- ➔ They are applied cold at ambient temperature so they have zero emissions and zero risk of fume installation and burns to operatives during installation.

Life expectancy

- ➔ Careful attention to material design and execution has provided in service performance of typically eight to 12 years (average 10 years life) on trafficked sites
- ➔ Further information on service life is available in the RSTA ADEPT service life of surface treatments document published in 2011 available at www.rsta-uk.org/publications.htm.

RSTA/ADEPT code of practice

- ➔ Published in 2011 and peer reviewed and endorsed by the Association of Directors for Environment Economy Planning and Transportation (ADEPT)
- ➔ The document is reviewed annually by the RSTA-ADEPT working party to ensure it remains rigorous, accurate and up to date to serve the needs of local authorities
- ➔ It is freely available on the RSTA website www.rsta-uk.org/publications.htm
- ➔ This code of practice has been written by the Road Surface Treatments Association and ADEPT to assist procurers and installers to obtain a high quality durable surface treatment. It represents best practice for the selection and application of slurry and micro surfaces to maximise their performance and durability
- ➔ To obtain the best results it is necessary to give careful consideration to a wide range of details and to plan and design the work carefully and to use experienced contractors with a good track record. All of these products comply with clause 918 of the specification for highways works, part of the manual of contract documents for highway works
- ➔ The type of application in which the products are applied and the prevailing ambient conditions at the time of installation are also important to ensure long-term durability of the product
- ➔ The purpose of this code is to identify the important aspects of the process and to cross reference

other documents relating to good applications of slurry and micro surfacing and so give practical guidance on achieving high quality

- ➔ The code discusses how to determine suitable sites for treatment
- ➔ Specification issues are covered in some detail and it highlights the clients’ responsibilities towards achieving a successful outcome. It goes into some detail regarding planning and coordination, health and safety aspects, planning the execution of the works, surface preparation, controlling material installation, and traffic management. It also covers aggregates and binders used in these products, rollers, sweeping, method of working and aftercare. There is also a section on hand applied footway slurry surfacing
- ➔ Training the workforce is also a major topic covered in the document. It is imperative that local authorities ensure their contractors have properly trained and qualified operatives with an NVQ level 2 in slurry surfacing and an appropriate CSCS card to ensure good workmanship which has a major impact on durability. There is also a checklist for contractors before during and after the works and a glossary of terms.

Summary

- ➔ Slurry surfacing incorporating micro-surfacing is an established, proven process with a long history of successful use
- ➔ It is an extremely cost-effective surface maintenance treatment when carefully designed, specified and executed
- ➔ Developments in materials, techniques and equipment and improved operator training mean there is a very low risk of early life failure. ●