

1. Introduction

There are many coated macadam, grouted, and surface dressed roads which, although the foundations are sound, have become cracked, crazed and deformed. These defects may be corrected by superimposing an overlay of new macadam or by replacing the existing surfacing. Both these methods are costly and in the case of an overlay there is the extra expense of raising footway and kerb levels.

However, as the deterioration of the existing aggregate is normally negligible it can be recoated by the Retread Process and reshaped into a level, skid resistant surface. The process is an established form of recycling road pavements and unlike many more recent concepts does not require the use of heat. It may be equally effective on water-bound, dry-bound, bitumen or tar-bound surfaces. This technique offers the opportunity of improving the shape and camber and thereby the drainage of the road. It is possible the Retread process will uncover tar-bound material and this will need to be dealt with in the appropriate manner with due consideration for the Health and Safety issues.

2. Application

The process consists of scarifying the old road to a suitable depth, breaking down the scarified material to the required size and reshaping. This is then mixed with a selected class of Retread emulsion by spraying followed by harrowing and rolling. Finally, the road is surface dressed.

The process is carried out in the following stages:

1. The existing road surface is broken up to a depth of about 80 mm. This material is then harrowed and rolled until it is reduced to a suitable grading containing no material over 75 mm in size. If the grading is deficient, new aggregate of one or more sizes is added to correct the grading of the existing surfacing. The surface is then reshaped to the required profile using an approved grader.
2. Depending on the grading and type of surface to be treated, bitumen emulsion to BS EN 13808 Class C55 B4, or Class C55 BF4 is applied by a bulk distributor complying with BS 3136-2 at a total rate of 5.5 to 8.0 l/m² in two or three applications. After each application except the last, harrows are traversed to turn the stone and to distribute the emulsion evenly.
3. If necessary the road is reshaped with a grader and then rolled preferably with an 8 to 10 tonne deadweight roller. The surface voids are filled with 6/14mm chippings, applied at an appropriate rate and rolled.
4. The surface should then be sealed by applying bitumen emulsion to BS EN 13808 [1] class C60 B3 or C69 B3 at a rate of 0.9 to 1.2 l/m² and according to the texture blinded with 2/6 mm or 4/10 mm chippings. The surface is then rolled.
5. After a period which may vary from a few days to three months depending on weather conditions, traffic etc., the retreaded surface should be surface dressed with bitumen emulsion to BS EN 13808 class C60 B3 or C69 B3 using 2/6 mm or 4/10 mm chippings. Depending on the road category the rate of application of the emulsion should be

increased by approximately 0.2 l/m² over the appropriate recommendation for hard surfaces in TRL Road Note 39 [2]. Alternatively a slurry surfacing or bituminous wearing course may be applied.

3. CE marking

At the end of June 2013 the Construction Products Regulation (CPR) was fully implemented in all EU member states. From that point CE marking became a legal requirement to place construction products, including Cationic bitumen emulsions, on the market.

References

[1] BSEN13808:2013 Bitumen and bituminous binders - Framework for specifying cationic bituminous emulsions

[2] Road Note 39: Design Guide for Road Surface Dressing - published by Transport Research Laboratory

For further information on all REA Technical Data sheets please look on the “Technical Datasheets” webpage on www.rea.org.uk

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