



Road Emulsion Association Limited

## REAL Technical Data Sheet No. 10 - The Retread Process

### Introduction

Throughout the country 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, at reduced inconvenience and cost compared with other methods. 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 camber and thereby the drainage of the road.

### Application

Briefly the process consists of scarifying the old road to a suitable depth, breaking down the scarified material to the required size and reshaping. This aggregate is then mixed with a selected class of Retread Emulsion by spraying followed by harrowing. The road is finally 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 B5, or Class C55 BF5 (BS434 Pt1 Class K2) is applied by a bulk distributor complying with BS 3136 at a total rate of 5.5 to 8.0 l/m<sup>2</sup> 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 (BS434 Pt1) class C60 B3 (K1-60) or C69 B3 (K1-70) at a rate of 0.9 to 1.2 l/m<sup>2</sup> 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 (BS434 Pt1) class C60 B3 (K1-60) or C69 B3 (K1-70), 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/m<sup>2</sup> over the appropriate recommendation for hard surfaces in TRL

Road Note 39(Fifth Edition). Alternatively a slurry surfacing or bituminous wearing course may be applied.

Note: Descriptions of emulsion grades in accordance with BS EN 13808 may change when UK Guidance document PD 6690 is finalised. During the transition period in changing from BS434 Pt1 to BS EN 13808, typical BS EN 13808 grade descriptions are used in the text of this data sheet, followed by the BS434 Pt1 description in brackets. Technical Data Sheet No1 gives a basic interpretation of grade descriptions from BS EN 13808, but for a full understanding of the specification and variations in grade descriptions, reference should be made to PD 6690 when it is available

**For further information see Summary and Reference Sheets on the Association's website**  
[www.rea.org.uk](http://www.rea.org.uk)

*Revised by the Technical Committee, July 2006.*