

Unit-IV (Construction of Bituminous Pavement)

ements

(a) Prime Coat:-

Bituminous prime coat is the first application of a low viscosity liquid bituminous binder to be spread before the construction material over an existing porous or absorbent pavement surface like WBM base course. Its main object is to plug in the capillary voids of the porous surface and to bond the loose mineral particles on the existing surface.

(b) Tack Coat:-

Bituminous tack coat is the application of bituminous material over an existing pavement surface which is relatively impervious. Tack coat is usually applied by spraying bituminous material of higher viscosity at the rate of 4.5 to 9.8 kg per 100² area.

(c) Surface Dressing:-

Bituminous surface dressing (BSD) is provided over an existing pavement to serve as thin wearing coat. When the surface dressing is similarly done in two layers, it is called 'two coat' bituminous surface dressing'. The main functions are:

- (i) to serve as a thin wearing course of pavement and
- to protect the base course.

- (i) to water proof the pavement surface and to prevent infiltration of surface water.
- (ii) to provide dust-free pavement surface in dry weather and mud-free pavement in wet weather.

(d) Seal Coat:-

Seal coat is usually recommended as a top coat over certain bituminous pavements which are not ^{im}perVIOUS. Also provided over an existing bituminous pavement which is worn out. The main functions are:

- (i) to seal the surface against the ingress of water
- (ii) to develop skid resistant texture
- (iii) to enliven an existing dry or weathered bituminous surface.

(e) Built-up Spray Grout:-

BSG consists of two-layer composite construction of compacted crushed aggregates with application of bituminous binder after each layer for bonding and finishing with key aggregates at the top to provide a total compacted thickness of 75 mm. This method is used for strengthening of existing bituminous pavements.

(f) Bi
BM or
consis
aggres
after
of 75

(g) Bi
PC C
Sizes,
compa
swept
of al
6.3

⊠ H
The k
sum, bi
choice
constr
clima
Bitum
proper
tech
hat-n

(f) Bituminous Macadam:-

BM or BBM is a premixed construction method consisting of one or more courses of compacted crushed aggregates premixed with binder, laid immediately after mixing. The BM is laid in compacted thickness of 75 mm or 50 mm.

(g) Bituminous Premixed Carpet:-

PC consists of coarse aggregates of 12.5 and 10.10 mm sizes, premixed with bitumen or tar binder are compacted to a thickness of 20 mm to serve as a surface course of the pavement. The PC consists of all aggregates passing 20 mm and retained on 6.3 mm sieve.

(h) Hot-Mix Technique or Cold-Mix:-

The bituminous binders used are either straight run, bitumen, road tar, cutback or emulsion. The choice of particular binder depends upon the type of construction, availability of materials and equipment, climatic conditions etc.

Bitumen, tar, require heating to bring them to a proper viscosity for their use. The construction technique using these materials, is termed as hot-mix technique.

Cutback and emulsion do not normally require heating and therefore applied cold ~~techn~~ and the technique is known as cold mix.

✶ Mastic Asphalt:-

It is a mixture of bitumen, fine aggregates and filler in suitable proportions which yields a voidless and impermeable mass. The mastic asphalt when cooled results in a hard, stable and durable layer suitable to withstand traffic load. This material also can absorb vibrations and has a property of self-healing of cracks without bleeding. It is suitable surfacing materials for bridge deck slabs.

Uni

✶ F

Ge

(a)

(b) De

(c) In

(d) In

(e) Set

(f) En

Soil

✶ Fa

(a) F