

CHIP SEALS/SEAL COATS/ BITUMINOUS SURFACE TREATMENTS



Chip seals are economical surface treatments designed to protect and prolong the lives of pavements. Chip seals can be used to protect new pavements, to increase surface macrotexture and skid resistance and to prolong the life of a pavement which is structurally sound but is beginning to age and may have some minor surface distress. Long term pavement performance studies have shown that chip seals are one of the most cost-effective methods of pavement preservation. Polymer modified emulsions, tighter specifications on the use of single-size aggregate, inclusion of fiberglass fibers, crumb rubber additives and new application equipment have all been recently developed to improve the construction and reliability of high performance chip seals and extend their use to high traffic volume roads.

THE PROCESS

The first step is a chip seal design done in the laboratory using the project aggregate. The emulsion should be formulated to break quickly with the chip application, and the shot rate calculated to achieve optimal embedment of the chip

in the residual asphalt. In the field, the shot rate should be adjusted for the surface condition of the existing pavement. In a single chip seal, an asphalt emulsion is sprayed on the pavement with a distributor, then immediately covered by a single layer of uniformly sized chips from a chip spreader. A double chip seal repeats the same procedure using lower emulsion and aggregate application rates, and the second aggregate is a smaller size than the first. The new surface treatment is then rolled to seat the aggregate, and broomed to remove any loose chips. Traffic should be controlled so that the new surface is not disturbed until after the final sweeping.

SITE SELECTION

Since chip sealing does not significantly increase structural capacity, the existing pavement must be structurally sound. Any moderate severity cracks or other distresses should be sealed or repaired and the surface should be cleaned prior to the treatment. The treatment is ideal for pavements with loss of surface texture and as a preventive maintenance treatment on aging pavements in good condition with minimal surface distress.

BENEFITS

- *Chip seals waterproof and seal small cracks and imperfections in the pavement surface.*
- *The surface treatment enriches hardened and oxidized asphalt.*
- *The treatment improves skid resistance and surface macrotexture.*
- *The seal protects the underlying pavement from oxidation, aging and traffic wear.*
- *The emulsion treatment is environmentally-friendly and safe for workers.*
- *Asphalt emulsion chip seal is one of the most cost-effective preventive maintenance techniques.*
- *High performance chip seals are the lowest cost preventive maintenance treatment designed for high volume roads.*
- *When used on the right roads, these asphalt emulsion seals are effective pavement preservation treatments to prolong pavement life and delay major maintenance or reconstruction.*