

South Carolina Rubber-Modified Dense Graded Surface Course (R-M DGSC)*

Summary

- Rate of Placement: 1-½ to 2 inches thick
- Rubber Content: 10% by weight of the liquid asphalt (approximately 0.6% by weight of the mix)
- Rubber Type: Ambient Crumb, nominal #40 mesh
- Tires Used: Approximately 700 to 930 tires per lane-mile of pavement
- Advantages
 - Increased rut resistance
 - Increased crack resistance
 - Increased pavement lifespan
 - Lower LIFECYCLE cost than conventional pavement
 - Beneficially utilizes waste tires



asphalt pavements. Although there are several different types of layers in asphalt pavements, what most people associate with the term “asphalt” is actually DGSC because it is so frequently used as the top layer of asphalt pavements. DGSC is composed of approximately 95% aggregate (rocks and sand) and about 5% asphalt cement binder, which is the black “glue” that holds the pavement together.



- Disadvantages
 - Higher initial cost than conventional pavement
 - Requires either use of blending unit or coordination with supplier for pre-blended binder
 - Slightly higher production temperatures
 - Lack of public awareness (general public, contractors, and public officials)
 - Lack of access to specifications
 - Limited experience with rubber-modified asphalt among contractors and agency personnel

Crumb rubber made from scrap tires may be used as an additive to the asphalt cement binder in various paving applications, including DGSC. Pavements made with rubber-modified dense graded surface course (R-M DGSC) have increased resistance to rutting, increased resistance to cracking, an increased pavement lifespan, and reduced maintenance requirements compared to conventional pavements. Although pavements made with R-M DGSC are initially more expensive than those made with conventional DGSC, they are actually less expensive over time due to their longer service life and reduced maintenance requirements. When used in DGSC, scrap tires can be used at a rate of 1,860 tires per mile of two-lane pavement.

Dense graded surface course (DGSC) is a layer of hot mix asphalt (HMA) that is the standard wearing course for most

*Note: Several other states also use R-M DGSC, but with varying rubber contents and mesh sizes.