

## Why Are Solids and Ash Content Important to Sealer Quality?

Solids and ash content are frequently mentioned in regard to sealer quality. What exactly do these terms mean and why are they important measures of sealer quality?

Both tests measure the ratios of components standard to any type of coating. Coatings are comprised, basically, of three essential parts. Resin is the component that binds the coating, and all of its parts, together and adheres the coating to the substrate. The coatings vehicle is the component that facilitates application. It literally allows the coating to travel over the surface to which it is being applied. After accomplishing this, it evaporates, leaving a film comprised of resin and filler. For emulsion pavement sealers, the vehicle is water. Finally, the filler includes pigment and all reinforcing fillers that improve abrasion, heat and water resistance. Asphalt emulsion sealers contain black pigment to help retain color as they oxidize. Refined tar and petroleum resin emulsion sealers require no pigment, so the filler is present in order to improve the coatings ability to resist weather and abrasion.

Solids content refers to a standard test for the non-volatile component of sealer. Simply stated, sealer non-volatiles are everything in the material that is not water, or as we learned before, the coatings vehicle. A measured amount of the coating is dried in an oven, leaving a residue comprised of filler and resin, just as it would in application to pavement.

Ash Content is a measure of the amount of filler present in the material. In this test a measured amount of the dried residue from the non-volatile test is fired in a muffle furnace at 1100° F. This burns all of the resin from the residue leaving only the filler.

For pavement coatings to be easily applied, water is added to the material in a proportion that allows the proper amount of resin and filler, or solids, to be left on the pavement. If too little water is added, the film will be too thick and will not cure properly. Should too much water be added, the film will be thin and will wear prematurely. For concentrate material, manufacturers of refined tar sealer are given wide latitude for solids content by ASTM D5727. There is even greater latitude given to asphalt and petroleum resin based sealers as there is no governing standard. Many manufacturers produce refined tar sealers at the extreme low end of the specifications range of 47 to 53 percent solids. Brewer Cote® and Eclipse® are produced at the high end of this specification, allowing the end user to add a greater amount of water to achieve the same solids on the pavement.

Wide latitude is also given to ash content. ASTM D5727 allows an ash content in the range of 30 to 40 percent. Material in the low end of this range is more prone to tracking while material at the high end is very likely to have poor resistance to water and abrasion. In other words, it is likely to wear prematurely. Brewer Cote® and Eclipse® are both produced with an ash content of 36 to 37 percent allowing for excellent wearing characteristics with little risk of tracking.