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Common Sealer Discoloration Issues

Most issues of sealer discoloration result from slow curing. Conditions which usually cause this are cool ambient conditions, cool surface temperatures, high humidity or the actual presence of moisture. These conditions often occur only in certain areas while the remainder of the sealed area has normal color.

Sealer is an emulsified mixture of filler, resin (refined tar, petroleum resin or asphalt) and water. During manufacturing other chemicals or polymers may be added to enhance film performance. The contractor will usually add sand and may add additives. After application the water, present in the coating as its vehicle, evaporates. As the water evaporates the resin particles coalesce encapsulating the filler, which is light in color. It is this process, which occurs rapidly when surface and ambient temperatures are above 70º F. that forms the desired deep black color. When conditions slow this process down, discoloration may occur.

Though not common, sealer can sometimes dry to a grey color. It is usually a cool weather phenomenon caused by migration of filler to the film surface due to slow curing. In cooler weather, water evaporates more slowly and the resin particles, which are not as pliable in cooler temperatures, coalesce more slowly. A small amount of the filler remains un-encapsulated and migrates to the surface of the film as it dries, resulting in an uneven grey color. It occurs primarily in cooler weather in shaded areas such as those still under tree cover or on the North side of buildings. The amount of filler present in the film surface is not significant and is usually dissipated by rain and traffic in a few weeks leaving the area uniformly black. The resulting film will usually exhibit normal longevity. It is more common with refined tar sealer than petroleum resin or asphalt.

Occasionally spots or larger areas of brown occur in an otherwise uniformly black application that is newly dried or even several days old. While it is possible that brown spots can be caused by contamination on the pavement surface, the usual culprit is moisture. Signs of pavement saturated with moisture are obvious. Areas that remain dark or cracks that continue to leak running water days after a rain are pretty easy to identify. Subsurface moisture isn't always apparent, however. Subsurface moisture that is not otherwise apparent can cause sealer to dry brown in spots or small areas as it evaporates through the pavement. In many cases these areas will follow surface grades for drainage or be adjacent to storm water collection basins that otherwise appear to be dry. Film integrity is not compromised unless sufficient moisture is present to prevent film formation. These areas eventually darken and become black. Localized failures, if they occur at all, usually take place within several days of application.

White outlines sometimes show up on freshly dried sealer. They usually occur at cracks and transitions to concrete curbs or basins. They are a result of a combination of lighter colored materials present in the pavement base and/or salt being carried to the surface by moisture. The majority of this material is usually salt. If there is sufficient salt present in the crack, the moisture present in the application of sealer itself may be all that is required for transport. It can occur even in summer as in many instances there is no subsurface outlet present to allow it to dissipate. The good news is that what is visible is on the surface of the sealer and presents no issue to film integrity. It usually disappears in several weeks, but sometimes months of traffic and rainfall are required for its complete removal. The remedy for all of these issues is time. There is almost always no loss of integrity in the applied film and resistance to wear is seldom compromised. In all of the instances referenced above, application of additional sealer is unlikely to resolve and may even compound the problem.

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