

# *Pro-Tect Asphalt Ltd.*

*Over 26 Years of Service In Northumberland County*

## **REASONS TO SEAL ASPHALT**

Research has demonstrated that properly applied (and properly timed) sealcoat can save the owner of a property \$100,000 or more - over the life of a hot mix asphalt pavement. But what does seal-coat actually do that results in this substantial savings?

Asphalt is a very complex mixture of thousands of chemicals which are predominantly open chain (aliphatic) in structure with a considerable degree of un-saturation within their molecular structure. The open chain provides easy access to weather, salts, and chemicals to attack and disintegrate the asphaltic molecules. As the asphaltic molecules disintegrate, the asphalt in the pavement loses much of its original properties, such as binding and waterproofing. The first visual sign of this phenomenon is a progressive change in the color of asphalt pavement from rich black to brown to gray.

Furthermore, asphalt, being a by-product of the petroleum distillation process, is easily dissolved by other products that also are derived from petroleum, such as oils, fats, grease, mineral spirits etc. The reason is quite logical: As petroleum, these various products existed together for millions of years. It is only through the petroleum refining process that they are separated for various uses. Because these individual products come from the same source, they have a natural affinity for one another and when put in contact with each other will try to join together again. So when automotive oil or gasoline - both petroleum distillates - leak onto an asphalt pavement, they will work to easily dissolve the similar chemicals in asphalt. These problems are associated primarily with off-street pavements such as parking lots, minor streets, airport aprons or runways, service stations, and home driveways, which carry low levels of traffic.

Roads, having the advantage of continuously rolling traffic, do not need protection because the rolling action of the traffic steadily brings the lower layers, rich in asphalt, to the surface and "kneads" the oxidized surface layers back into the pavement. Eventually all the asphalt binder is exhausted and the aggregates begin to unravel due to the absence of the binding cement. This happens to all pavement including roads. The rate of pavement deterioration depends upon the traffic volume as well as climatic conditions.

The next step is the development of minor cracks which widen and deepen with time. If the cracks are not repaired at this stage, water seeps into the base courses and damages the pavement's load bearing capacity. It is evidenced by rutting, shifting, and serious alligating. The pavement then must be either overlaid or completely removed and reinstalled, depending on the condition.

Off-street pavements do not have the advantage of this "kneading" action. The surface layers of off-road pavements are under continuous attack from the weather and other destructive elements, eventually developing minor surface cracks. Again, aggregates start unraveling producing minor cracks which widen and deepen with time. The damage will continue if proper protective actions are not taken. So it would be logical to conclude that off-street pavements can be preserved by a "protective coating" that resists attack by the elements that destroy the asphalt in the first place.

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