



NaturalPAVE[®] XL Resin Pavement[™]

Fuel Spill Resistance Superior to Conventional Hot Mix Asphalt and Hot Mix Asphalt Mixtures Formulated with Fuel Resistant Additives

NaturalPAVE XL Resin Pavement products are a sustainable flexible pavement alternative to Hot Mix Asphalt pavement that provides superior resistance to fuel spills as well as superior pavement materials performance as documented in Marshall Stability, Resilient Modulus and Dynamic Modulus testing conducted in independent pavement materials testing laboratories.

Reducing Fuel Spill Damage

Fuel spills can create costly damage to asphalt pavements, breaking down the asphalt binder and shortening the service life of the pavement. The asphalt cement product used as the binder in the production of Hot Mix Asphalt (HMA) pavement mixtures is produced by refining crude oil, as are gasoline, jet fuel and diesel fuel products. The fuel and asphalt products are therefore chemically compatible and readily mix with each other. Fuel spills on asphalt pavements soften the asphalt binder and degrade the HMA pavement.

A variety of additive products are marketed to improve the fuel resistance of hot mix asphalt pavement mixtures. Not one of these additive product produces an asphalt pavement mixture that is fully resistant to damage. The current standard for a fuel resistant asphalt mixture formulated with one of these additive products requires that pavement specimens must survive immersion in kerosene or jet fuel for 24 hours with less than 5% loss of mass. The asphalt pavement materials manufactured with these so called fuel resistant pavement mix formulations are still subject to damage, but at a reduced rate.

Eliminating Fuel Spill Damage

NaturalPAVE XL Resin Pavement mixtures are formulated with petroleum-free binder materials that do not mix with fuel and consequently are not softened by fuel spills. To demonstrate the fuel resistance qualities of NaturalPAVE XL Resin Pavement mixtures, NaturalPAVE specimens were immersed in Jet A1, diesel and gasoline fuels as described at right, using the same immersion periods as standardized for testing asphalt based pavement specimens.

NaturalPAVE XL Resin Pavement Fuel Immersion Tests - Procedure

1. Pavement specimens were prepared with the NaturalPAVE XL Resin Pavement binder.
2. The specimens were photographed and the original masses of the specimens was recorded.
3. The specimens were immersed in Jet A1 fuel for a period of 24 hours and then left to dry for 24 hours before the final mass of each specimen was recorded. The specimen immersed in diesel fuel for 24 hours was weighed and then once again immersed in diesel fuel for a period of 28 days.

In each case, the NaturalPAVE XL Resin Pavement specimens suffered no damage or loss of mass as the result of being fully immersed in the fuel products for the time periods noted above.

Laboratory compacted specimens after 24 hours Jet A1 immersion.



Conventional Asphalt

Fuel Resistant Asphalt

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