TECHNOLOGY SUMMARY

Accelerated Lithification Process

LITHIFIED Technologies™

Reclaim Your Road with Nature's Concrete™

Navajo DOT Highway N52 - Chip Seal Surface on Top of LithTec™ Treated Base

Actual, Untouched Photo

Lithification is Mother Nature's complex process involving naturally occurring chemicals, minerals, heat, moisture, pressure and cementation that combine to form complex aluminosilicates and gradually turns soil to rock over many years.

Lithified Technologies' **Accelerated Lithification** process takes lessons learned from Mother Nature's lithification process and uses an eco-friendly trade secret technology, **LithTec**, composed in part of naturally occurring chemicals to form the aluminosilicates necessary for cementation, and in combination with moisture and pressure (compaction), it turns your reclaimed road materials into a foundation of Nature's Concrete with load bearing capacities in 24 hours!

LithTec includes a component of cement in its proprietary composition; however, when the other naturally occurring geological chemistries are formulated together, a new compound is created, called **"Nature's Cement"**. LithTec, as Nature's Cement, is many times stronger at the same dosages than any variation of traditional cement, including Ordinary Portland Cement, Portland Pozzolana Cement, and cement products with admixtures. And, just as cement is one component in concrete, and concrete is not cement, cement is in LithTec, but **LithTec is not cement and is far from it**. However, a similarity to Portland Cement used in soil for stabilization, is that LithTec can produce very high strength numbers (albeit at much lower dosages than the cement).

But what separates Nature's Cement from the same old pozzolan products that have been used for decades in road base stabilization is that LithTec's Accelerated Lithification process produces a dramatically reduced pore cementitious bond that yields a **unique combination of strength, ductility and permeability performance that is unmatched by cement, lime, polymers, or traditional stabilization products**.

Strength in road designs is obviously important to handle today's heavy trucks and equipment, but strength without elasticity to support the repeated loads going over the same roads time and time again, and strength without consideration for keeping water out of the road base (which is the #1 reason that roads fail), is a sure way to have roads break down quicker than expected.

Why do roads breakdown and fail sooner than planned with all the advances in construction and engineering today? The answer lies in an old saying among road construction veterans, which is that **"…roads wear from the top down, but they fail from the bottom up…".** The reason roads fail from the bottom up is primarily because water either enters the road base or the "foundation" of the road through subgrade infiltration, or water enters the road base from the top through cracks in the surface (many times caused due to brittleness attributed to the use of cement in the road base). No matter what the surface of your road is constructed of, once the road base begins to break down and becomes dispersive due to water, it is the beginning of the end for the road because more and more water will infiltrate the base and accelerate failure.

#1 Road Failure Cause: Water Infiltrating the Foundation of the Road

Roads wear from the top down, but they fail from the bottom up

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TECHNOLOGY SUMMARY

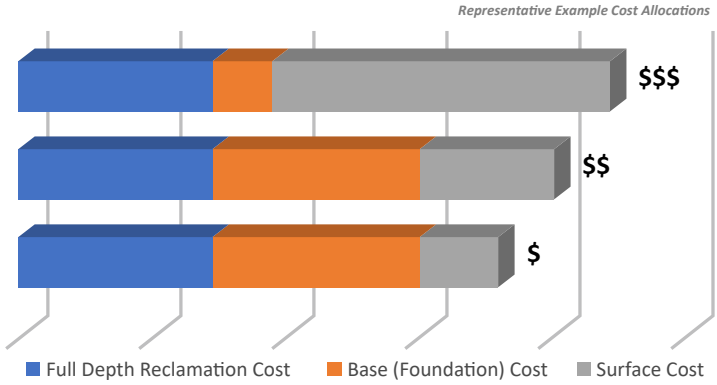
Value Engineered Roads

LithTec is the Foundation for Value Engineered Roads

Traditional Asphalt Surface
Most Structural Credit in Surface

Value Engineering w-60% Less Asphalt in Surface
Most Structural Credit in LithTec Base

Reduced-Cost Double Chip Seal, All-Weather Surface
All Structural Credit in LithTec Base



Traditional road designs that have been the accepted standard for years, place a significant part of the structural credit (and consequently cost) for the components needed to build the road in the surface, i.e., the asphalt or concrete top layer that you drive on. These traditional designs also limit the consideration for the structural credit for the road base, and give no credit for the permeability of the foundation or account for the effects of water reentering the road base and it becoming dispersive. From a cost standpoint, asphalt and concrete are the most expensive components compared to the base course and soil-cement materials under them, and as such, most of the budget for the total road expense has typically been allocated to the cost of the asphalt or concrete surface in traditional designs.

Using LithTec's unique combination of strength, elasticity and non-dispersive properties in your road's foundation, roads can now be value engineered so that more of the structural credit goes to the road base. This reduces the amount of asphalt or concrete necessary in the surface for structural integrity, and because LithTec is carrying the structural load and it is a fraction of the price of asphalt and concrete, **you get a lower overall cost while producing a better, longer lasting road**.

Further, when safety is a concern or when faced with a significant number of miles of failing asphalt or failing gravel roads on a limited budget, you can now make an affordable road by reclaiming the materials you've already paid for and adding LithTec into the foundation of the road. With a strong structural base, a low-cost chip seal surface can be added to the LithTec-treated, reclaimed materials in the base and **the result is a safe, all-weather asphalt quality ride road for a fraction of the cost of asphalt**.

Why is LithTec's™ Accelerated Lithification™ process better than a standard pozzolan or pozzolanic reaction in Ordinary Portland Cement, Portland Pozzolana Cement, etc.?

In LithTec's™ Accelerated Lithification™ process, the pores in the chemically modified and bonded permanent matrix are significantly reduced compared to soil-cement which yields an unprecedented combination of benefits of strength, ductility and permeability.

In addition to LithTec besting Portland Cement in road base foundations by being non-dispersive and having higher elasticity at the strengths required for designs, LithTec differentiates and separates itself from cement in strength at various times to compaction. Specifically, LithTec treated soil retains full strength after more than 6 hours time to compaction vs. soil-cement, which loses over 10% of its strength after 2 hours, over 50% after 4 hours, and soil-cement loses over 75% of its strength after 6 hours time to compaction, compared to its strength at 1.5 hours time to compaction.

UCS Strengths after Various Times to Compaction
LithTec™ vs. Cement