Lithification is a complex process involving naturally occurring chemicals, minerals, heat, moisture, pressure and cementation that combine to form complex aluminosilicates without calcium hydroxide (lime), in which soil gradually becomes solid rock over many years.

Lithified Technologies LithTec™ Road Solution expels the connate fluids, then the aluminosilicate and sediment molecules gel, and under compaction, the matrix fuses together into solid rock through porosity destruction creating “Nature’s Concrete™”.

Lithified Technologies LithTec™ Road Solution is an eco-friendly trade secret technology that accelerates the lithification process of turning soil to stone from years to about 24 hours.

Lithified Technologies LithTec™ Road Solution accelerated process uses a derivative of naturally occurring potash (7th most common element in the earth's crust) along with other trade secret chemistries that combine and create a chemical reaction with the natural elements common in all soils to turn the in-situ soil into stone with a rock-hard, water resistant surface in about one day in most cases.

Lithified Technologies LithTec™ Road Solution yields an unprecedented combination of benefits including extremely low and slow permeability with outstanding hydrophobic qualities, and generates record high strengths with excellent ductility and shrink/swell characteristics.

Lithified Technologies LithTec™ Road Solution has passed Synthetic Precipitation Leaching Procedure (SPLP) EPA Method 1312 confirming that it does not have any harmful chemicals that leach into the environment.

Lithified Technologies LithTec™ Solution is a Cost-Effective Option for:

- Construction and Maintenance of Roads, Lots & Yards
  - Total Road Solution
    - Asphalt Performance Driving Surface
    - LithTec™ Treated Subgrade, Subbase and/or Base
  - Alternative to Flex Base, Cement & Lime Stabilization
    - Under New Asphalt, AC and Concrete Pavements
- Landfill Caps
  - Non-Permeable
    - Increase Percentage Recapture of Gases
    - No Grass Maintenance, Reduce Dust
LITHIFIED TECHNOLOGIES
ACCELERATED LITHIFICATION™ TECHNOLOGY

LITHTEC™ DESIGN BANK TEST METHODOLOGY

Lithified Technologies created the LithTec™ Design Bank testing approach as an advanced engineering tool for designing roads, lots, and yards. The LithTec™ Design Bank includes the California Bearing Ratio (CBR), Permeability, Resilient Modulus (MR) and Unconfined Compressive Strength (UCS) for both Strain at Failure and Stress at Failure. While many engineering design methodologies rely on the results from only one CBR, MR or UCS test, the LithTec™ Design Bank includes all three and expands the traditional singular criteria to also include both Permeability and UCS Strain at Failure in consideration of the damaging effect of water, as well as the benefit of ductility in designs, with all tests having minimum requirements for a comprehensive view of long term performance expectations.

The holistic approach of the LithTec™ Design Bank exposes weak spots in other products used for stabilizing base materials. Many products, such as cement, lime and various polymers may excel at one or another of the tests included; however, no other product has demonstrated that it meets the minimum requirements set forth in Table 1: LithTec™ Design Bank Testing below.

Table 1: LithTec™ Design Bank Testing

<table>
<thead>
<tr>
<th>Soil Test</th>
<th>Protocol</th>
<th>LithTec™ Design Bank Minimum Requirement</th>
<th>LithTec™ Results for Various Designs</th>
</tr>
</thead>
<tbody>
<tr>
<td>California Bearing Ratio (CBR)</td>
<td>ASTM D1883-16 or AASHTO T193-13</td>
<td>100</td>
<td>&gt;410</td>
</tr>
<tr>
<td>Permeability (K)</td>
<td>ASTM D2434, ASTM D5084 or AASHTO T 215</td>
<td>10^{-7} cm/sec</td>
<td>1.2 x 10^{-8} cm/sec</td>
</tr>
<tr>
<td>Resilient Modulus (M_r)</td>
<td>AASHTO T 307 or AASHTO T 208 Module Derivative</td>
<td>100,000 psi</td>
<td>&gt;700,000 psi</td>
</tr>
<tr>
<td>Unconfined Compressive Strength (UCS)</td>
<td>ASTM D2166M-16 or AASHTO T 208-15</td>
<td>0.90%</td>
<td>1.81% (with &gt;540 psi Stress @ Failure)</td>
</tr>
<tr>
<td>Stress at Failure</td>
<td>ASTM D2166M-16 or AASHTO T 208-15</td>
<td>250 psi</td>
<td>&gt;700 psi (with 1.43% Strain @ Failure)</td>
</tr>
</tbody>
</table>

1LithTec™ Design Bank testing approach requires that the minimum results for each soil test are met for the specific project, unless waived by the engineering firm, project designer, customer or due to circumstances unique to the project or soil.
2Tx-DOT 113E Compaction Energy (22,918 lb-ft/ft³).
3Results are from various soils and listed to illustrate upper values achieved for specific design needs.

CORRELATIONS BETWEEN RESILIENT MODULUS AND OTHER STRENGTH & ELASTICITY VALUES
Using Federal Highway Administration Correlation Chart

Lithified Technologies™ LithTec R700
HEALTH
0 = Minimal Hazard
1 = Slight Hazard
2 = Moderate Hazard
3 = Serious Hazard
4 = Severe Hazard

1Prior to lithification and curing in soil; post lithification Health “0”
2Post lithification and curing in soil per Synthetic Precipitation Leaching Procedure (SPLP) EPA Method 1312. Uncontrolled releases to the environment should be avoided because prior to lithification, may be harmful to aquatic life due to an increase in pH without adequate dilution.