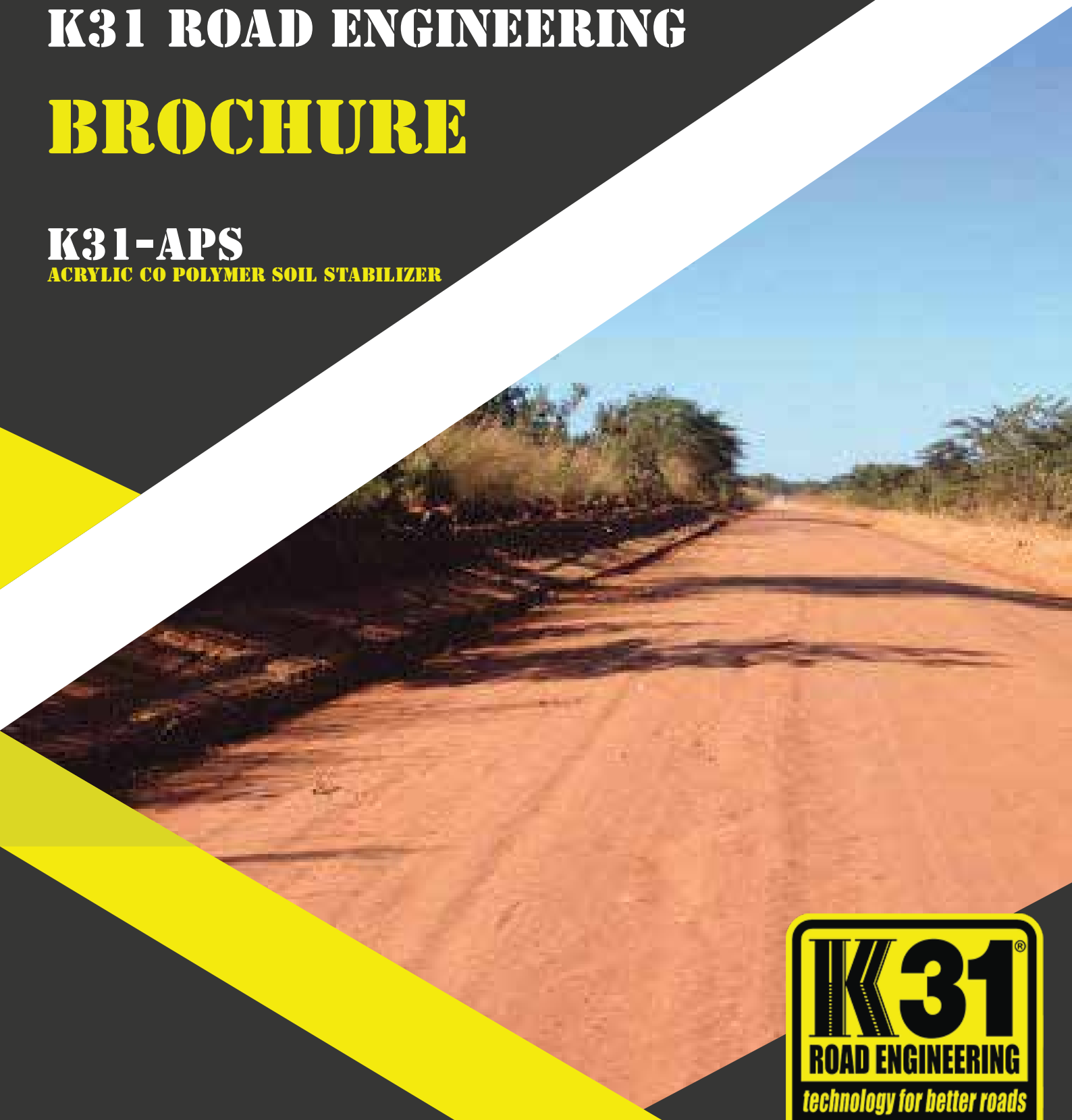
K31 ROAD ENGINEERING

BROCHURE

K31-APS

ACRYLIC CO POLYMER SOIL STABILIZER



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ROAD ENGINEERING
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TECHNOLOGY FOR BETTER ROADS

Manufacturer of Acrylic Polymers used for Soil Stabilization, Dust Control, and Erosion Control

Soil Stabilization techniques and methods have been used for centuries. With the advancement of chemical stabilization we have created Environmentally friendly polymers that are easy to use, cost effective and will increase the strength, durability and load bearing longevity of all in-situ soils.

Take you stabilization efforts to a whole new level.

Our environmentally friendly polymers will increase the load bearing strength on all soil types.

Introduction

K31 Road Engineering has been in the soil stabilization and dust control solutions business for over 20 years. With years of research and trials we have developed the most innovative, environmentally friendly and cost effective polymers on the market. The K31 road engineering line of polymers have been successfully tested on various soils around the globe. Our soil stabilization innovations line of products are used by the mining industry, municipalities, governments and private sector throughout the world. We stand behind our products and our results.

What We Do

K31 Road Engineering are the industry leaders in the Soil Stabilization Innovations line of acrylic co-polymers are extremely effective in stabilizing all soil particles, creating durable, long lasting roads. Our products lower job costs and replace traditional methods such as the need for constant watering for dust control; lime, fly ash or cement stabilization for roads; rock for sub bases; and geo grids, hydroseed, matting etc for erosion control.

The K31 Road Engineering line of polymers, when applied will penetrate into the soil. Upon curing it will bond the soil particles together with a nano-polymerized grid. This will "laminate" the soil particles in place, yet have tensile strength to avoid fracturing. The treated area becomes very resilient to wear and our unique elasticity ensures the road will survive the onslaught of vehicular traffic, rain, snow and various conditions that can wear down a road. The product is non-hazardous, dries odorless and transparent.

Why US

It starts with Innovation, we at K31 Road Engineering will never rest knowing we have the best products on the market. We are constantly in competition with ourselves to research, develop, create, and blend the next best stabilization chemicals. Our products are environmentally friendly and perform better than any other soil stabilization polymer in the Field. Not only will we out perform other chemical stabilizers we are also more affordable. We are able to offer better pricing due to the large volume we sell.

Our Mission

Our mission is simple; offer the best product at the lowest cost while maintaining a chemical that will not impact the environment in a negative way. We also strive to lower the carbon footprint of our environment. By using our products you conserve water and eliminate the need to pulverize mountains and hills for grave.

In rural areas we take pride in the fact that we are able to offer a solution to connect towns and villages with roads that will not be destroyed by the elements and at a price point that makes these roads feasible.

With our constant Research and Development we will maintain our performance edge by always supplying the highest performing product.

Innovation
Implementation
Performance
Efficiency

Customer Service

We work hard to provide all of our clients with the best understanding of the solution they need at the lowest cost. With over 20 years experience with different soils we have a great understanding of what is needed to get the job done the right way.

We provide our customers with the best polymer solutions, that is why we use acrylics in our blends. Many other companies provide polymer products for stabilization but they don't perform nearly as well. Common polymers provided by other companies are Styrene base, Vinyl Acetate Emulsions, Homopolymers and many others. Also our products dry clear as opposed to white like some companies that use waste paint for dust control.

We answer all inquiries in a timely fashion no matter how small. When an order is placed we will prepare it and have it shipped out immediately. Rest assure your business is important to us and we aim to keep it.

K31 Road Engineering's line of polymers are made with the best raw materials. Our products will out perform the competition. We keep our margins low to ensure the best cost and we keep our performance high to maintain our customer base.

With over 20 years experience in the Soil Stabilization / Dust Control FIeld, we can provide the best application rates and procedures to make sure that the application is a success everytime. If we feel our products won't help, we won't sell it.

With Our Business and Manufacturing Solutions In Place
We Are far Ahead Of Any of Our Competitors

K31 Road Engineering believes in transparency. That is why a Certificate of Analysis will be provided with every load we sell

Our Solutions

K31 Road Engineering advanced line of polymers can be used to solve numerous soil stabilization, dust control, and erosion control issues. Our products have been used on six continents and over 50 countries world-wide. Our team of Soil Stabilization experts can help you and a solution to almost any issue.

Haul Road application in West Africa. This was for a Gold Mine where there is over 100 haul truck per day. Dust from the mining activities was covering a local village. Soil Stabilization Innovations was the solution.

Main Applications

K31 Road Engineering line of polymers can be used on any application that requires soil particles being binded together. So we have many applications that are not advertised as much as our top areas of business. We have treated areas such as Golf Course Bunkers, Cart Paths, BMX Tracks, Spill Prevention, Brick Making and so on. If you don't see your specific application listed please ask us about it.

ROAD STABILIZATION

K31 Road Engineering polymers will strengthen in-situ soils. It will increase the load bearing strength and reduce the permeability of the area. This will mitigate the swell potential of the soils and protect the treated area from turning into mud when wet.

DUST CONTROL

K31 Road Engineering polymers when used at a very light rate will effectively bond the soil particles together preventing fugitive dust. This eliminates the need to constantly water an area. One application can last over five years.

EROSION CONTRO

K31 Road Engineering polymers will create a flexible plastic matrix over the soil reducing water infiltration. This eliminates soil saturation that increase the weight of the soil causing it to fall out of place and create erosion issue.

SUBBASE STABILIZATION

A road is only as good as it's subbase. K31 Road Engineering polymers will strengthen the in-situ soil also it eliminates the swell potential of the soil. This will make it possible to reduce the thickness of the wear surface. It isalso cheaper than traditional means.

Roads

We can guarantee the best Soil Stabilization polymers at the lowest price. The United States Military has used our blend of soil stabilizing products for years. Whether it be stabilizing in-situ soils for supply roads, helicopter pads, even runways for heavy cargo planes, our blends have been the preferred method. K31 Road Engineering has been used on Mine Haul roads in Chile, RM roads in Canada, Plantations in Malaysia, and numerous places around the globe. If Soil Stabilization is required, you can count on the our line of polymers to perform.

By eliminating the need to constantly spray a road with water you are not only saving money but also helping the environment

Black Dye Can be added to give the area the look of Asphalt.

K31 Road Engineering roads are cheaper than gravel, bitumen, lime, cement, and asphalt roads.It Is more affordable than constantly maintaining dirt roads.

Save Money

A smooth road that maintains it's grade presents less stress on a vehicle. This reduces-maintenance and increases vehicle performance and saves money.

Maintenance

Treated roads will reduce the permeability of roads and eliminate water penetrating and turning the surface into mud. Our roads have been subjected to many monsoon and snow conditions.

Reduce Permeability

Our blend of polymers are easy to apply & saves time building a road when compared to traditional methods. One crew can easily treat a kilometer or even a mile a day.

Save Time

Our polymers will increase load bearing PSI on all soils. We have lab results where we have increased CBR over 650%. If any soil is in question send it to our in-house lab and we can test it.

Increase Load Bearing Strength

Stabilizing roads is a must for safety. A poor base can cause vehicles to malfunction and even lose control. Treating a road with our blend of polymers will not deteriorate the traction of the road, in many cases it will increase it.

Maintenance

Dust Control

With over 20 years' experience in the Soil Stabilization and Erosion/Dust Control Fields, we can provide the best application rates and procedures to make sure that the application is a success every time. K31 Road Engineering's line of polymers is made with the best raw materials.

to constantly spray a site to control dust, our polymers will greatly reduce the amount of water needed to keep a site in compliance

Prevent fines from Air Quality Agencies and other agencies overseeing dust related issues. Reduce job cost with a one time application that can last years.

Save Money

K31 Road Engineering polymers will eliminate fugitive dust (pm10 & pm2.5) from leaving your site with our dust control polymers. One application will last over 12 months.

Eliminate Fugitive Dust

With a one time application there is no need to keep applying water to control dust. With severe droughts throughout the globe this is a simple cost effective solution.

Save Water

PM10 and PM2.5 can be extremely harmful if it enters the airways and settles in the lungs. Our polymers will prevent the dust from a site from becoming airborne.

Respiratory Illness

A simple application will eliminate the need for a dedicated crew to control dust related issues onsite, such as watering and equipment breakdowns related to dust.

Reduce Man Hours

Fugitive dust emission can cause a number of issues on a jobsite including but not limited to; lack of visibility, respiratory related illness, and equipment malfunction. A simple application will eliminate this.

Increase Safety

Erosion Control

K31 Road Engineering line of erosion control polymers work effectively to protect slopes and embankments from Erosion. K31 Road Engineering engineered acrylic polymers will penetrate the earth soil and upon curing will bond the soil particles together. This will "laminate" the area reducing water and wind penetration keeping soil sediment in place. Unlike mulch applications, it will not sheet off but will stay adhered to the soil. Also it will not harm vegetation and in many instances will increase germination rates.

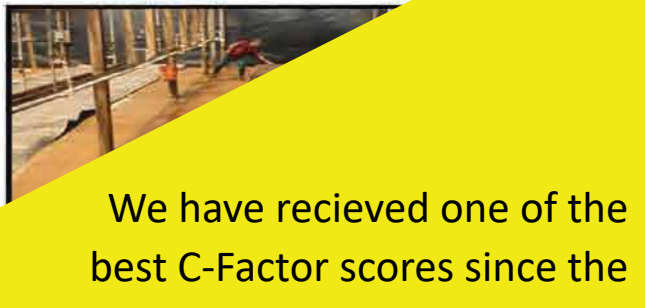
Product Mixed at 8:1 Ratio with Water

Mixture Sprayed at 1 gallon / 10 sf

Start of Test

After 2"/hr Rain

After 4"/hr Rain



We have recieved one of the best C-Factor scores since the process has been in circulation

Once cured the product will not leach when wet and will keep all soil sediment in place.

K31 Road Engineering line of polymers will not only utperform traditional means such as mulch and plastic lining but it is also considerably cheaper than these applications.

Save Money

Our polymers are designed to withstand jet blast many 100's of miles per hour to eliminate FOD. So you can apply with confidence that our polymers will withstand heavy winds and prevent wind based Erosion.

Maintenance

K31 Road Engineering polymers will reduce the permeability of the treated soils prevent-ing water from over saturating the soil particles preventing water based erosion.

Reduce Permeability

Our polymers prevent over saturation of soils . It replicates a terrarium by keeping moisture in the soils longer. Studies have shown 2 to 5 day earlier germination rates along with 20% higher germina-tion rate of grasses.

Save Time

Our polymers keep sediment in place and helps prevent it from going into stormwater drains. In a recent Turbidity test we greatly reduced the NTU's (Nephelometric Turbidity Units) from the untreated baseline.

Increase Load Bearing Strength

Our SK31 Road Engineer-ing line of erosion control polymers are manufactured with the Environment in mind. They are safe to treat soils with and will not harm humans or wildlife.

Increase Safety

SubBase

The sub-base layer serves three functions. First, it protects the sub-grade from over stressing. Second, it provides a platform for the wear course layer. Third, it serves as a drainage and filter layer. The United States Department of Transportation generally recommends that the minimum soaked unconfined compressive strength requirement for a cementitious sub-base be at 250 psi or greater. Soils and Sand stabilized with a very low dosage of our Soil Stabilization Innovations line of polymers can easily achieve a soaked UCS many times greater than 250psi. Use K31 Road Engineering engineered polymers to create a stable and durable sub-base that when constructed will cater to heavy traffic and can absorb more deflection than any other stabilizer available on the market. Plus it mitigates the swell potential of the soil.

Soil Stabilization Innovations advanced polymers can be used to treat in-situ soils as the subbase l ayer, so you won't need to import aggregate

Make a stong durable Subbase layer in any environment.

K31 Road Engineering roads are cheaper than gravel, bitumen, lime, cement, and asphalt roads. Using our polymers will also reduce the freight costs.

Save Money

A major reason for a poor performance of a flexible base is movement of one particles under pressure in the sub-base layer. Using our polymers eliminates the movement of one particles.

Bonds Soil Particles

Once Cured Soil K31 Road Engineering will not re-emulsify and wash away or leach with water. It will also mitigate the swell potential of soils.

Does Not Leach

Our blend of polymers are easy to apply & saves time building a road when compared to traditional methods. One crew can easily treat a kilometer or even a mile a day.

Save Time

Our polymers will increase load bearing PSI on all soils. We have lab results where we have increased CBR over 650%. If any soil is in question send it to our in-house lab and we can test it.

Increase Load Bearing Strength

A sub-base constructed with K31 Road Engineering polymers eliminates the need to import gravel by binding in-situ soils, achieving better compaction and strength than a gravel built sub-base.

Conservation

Other Applications

K31 Road Engineering advanced line of engineered polymers can bind soils and increase compaction, load bearing strength, and increase longevity on nearly all soil types. These gains presents itself to numerous different applications. If you have an application in mind we would like to hear about it.

Runways

K31 Road Engineering has a good understanding of the required ground psi of many different types of aircraft. We design our application to double or triple the design specifications required PSI requirements.
Ensuring a solid base for which to land.

Containment Berms

K31 Road Engineering polymers have been are currently used for spill containment berms. Our polymers will create a strong durable berm that will reduce the permeability of the soils and also prevent the berms
from eroding or losing sediment.

Golf Bunkers

Our polymers have been used to line bunkers on various golf courses throughout the world. Our solutions will create a durable plastic resin liner that will prevent soil or debris in the substrate from contaminating the sand in the bunker. This will keep your bunker sand clean foryears. The application is a lot easier than other methods and is a fraction of the cost.

BMX Trax

Our polymers have been used for dust control / soil stabilization on numerous BMX tracks throughout the United States. It is not uncommon for Nationals to be hosted on an K31 Road Engineering engineered polymer stabilized surface. When constructing turns and jumps incorporate our polymer into the soil to keep the shape of the jump or turn and have a dust free surface that will hold up to rain and snow.

With limitless application types and procedures, we would like to hear about your next project

In -situ field testing shows we are the highest performing product on the market. Whether in the field or in the lab we will outperform all others.

Endless Possibilitie

With the advancement of polymer modified soil technologies more and more applications are becoming viable. Traditional methods that have been used in the past are no longer the most effective in both performance and cost. Science is evolving the way we stabilize soils andincreasing the longevity and cost of projects

- Roads
- Subbase Stabilization
- Non Traffic Dust Control
- Mine Haul Roads
- Mine Tailings
- Parking Lots
- Solar Sites
- Oil Pads
- Runways
- Helicopter Pads
- Military Supply Roads

- Hazardous Waste Sites
- Erosion Control
- Sediment Control
- Landfill Cover
- BMX Trax
- Golf Bunker Lining
- Cart Paths
- Historical Sites
- Brick Building
- Pond lining
- Silage Pads

Photo Gallery

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