

SF-Hybrid™ Submittal Data

SF-Hybrid™ is a stabilized fill material with a CBR of 16% or higher. This material is best used as a non-pervious substitute for virgin compactable structural fills under pavement structure, undercuts, and building pads (where approved by your Geotechnical Engineer).

Stabilization Process

The term “Hybrid” is used due to the presence of two stabilizing chemical agents; cement and lime. The materials exact percentage is calculated based on the soil and aggregate characteristics during the processing procedure and the end use of the material.

Cement provides the permanent stabilization characteristics, while the lime stabilization adjusts the material to it’s best natural moisture percentage for processing. The advantages of this “Hybrid” process ensure complete encapsulation and stabilization in addition to one time placement. Lime stabilizing agents generally must be aerated and re-compacted (this period is called “proofing”). The **SF -Hybrid™** does not require this process due to the testing process at the facility. This “Proofing” chemical reaction also slows down the pozzolonic reaction of the cement; thus providing a delayed initial processing strength gain. This is why the material can be re-handled without concern for re-compacted strength loss.

Trenches

SF -Hybrid™ can be excavated and re-installed as a terrific trench backfill substitute. Due to an above-neutral ph, it is advisable to check with local codes regarding wraps around ductile iron fittings and pipe.

Geotechnical Information

Geo-Technology Associates, Inc.¹ (GTA) has performed an evaluation of the **SF-Hybrid™** for use as a sub-grade replacement.

Many samples have been tested for grain-size analysis, Atterberg Limits, moisture-density relationships, and CBR-value. The grain-size analysis and Atterberg Limits testing were performed to determine the Unified Soil Classification System (USCS) designation for the soil. USCS classifications provide information regarding soil behavior beneath pavement and foundation systems. The typical results of the testing are as follows:

SUMMARY OF LABORATORY TESTING

| BORING NO. | USCS CLASSIFICATION | AASHTO | Passing No. 200 Sieve, % | LL % | PI % |
|----------------|-----------------------------|--------|--------------------------|------|------|
| Typical Sample | Silty SAND with gravel (SM) | A-2-4 | 32.8 | NP | NP |

Note: LL=Liquid Limit PI=Plastic Index NP=Non-plastic

For questions regarding the Geotechnical data and design herein, please contact Scot Gordon, P.E. of GTA at 301-638-3094².

¹ GTA is not affiliated with **SmartSite**, LLC and provides independent third party testing and consulting.

² Costs resulting from inquiries shall be paid by the customer that result in time and testing costs incurred by GTA.

FAQS; Frequently Asked Questions

Q1: What is the compaction standard?

A1: Because stabilized soils require moistures that are often more than 2% above optimum (3%-4% are good and normal), a modified proctor is necessary for compaction. Running a sand-cone test paralleling the nuclear gauge will help calibrate the gauge to the actual in place dry density of the materials and thereby provide a reliable compaction test. **IMPORTANT NOTE:** Proof rolling prior to pavement is still the best way to ensure both material compaction and sub-grade quality and performance.

Q2: Where does the Hybrid material come from?

A2: **SF-Hybrid™** is processed by Soil Safe, Inc. at their Brandywine, Maryland facility. Soil Safe recycles construction materials from petroleum contaminated soil and aggregate materials. This recycling process prevents the burning or land-filling of valuable construction materials that are diverted from the waste stream while preventing natural resource extraction. This process is regulated by MDE and is performed in accordance with Permit #2003-OPS-14480C.

Q3: How can you tell that the material has been processed correctly?

A3: Because the **SF-Hybrid™** is stabilized with both cement and lime the material will not be plastic (NP). This means that the material will not roll in your hand (like a standard clay test).

Q4: How do I get it approved to substitute with another type of sub-base

A4: SmartSite, LLC does not allow the use of the **SF-Hybrid™** as a pavement or sub-base substitution. However, **SB-Hybrid™** (a **SmartBase™** product) has an AASHTO coefficient of .09 which is greater than both BRG and RC-6. For a fee, GTA can issue a letter to the appropriate agency recommending the substitution.

Q6: Is this material LEED Certified?

A6: The **SF-Hybrid™** is an environmentally friendly material, but LEED certifies green projects, not materials. As members of The United States Green Building Council (**USGBC**), we can help you apply for your project's LEED recognition.



LEEDS

The U.S. Green Building Council is a nonprofit membership organization whose vision is a sustainable built environment within a generation. Its membership includes corporations, builders, universities, government agencies, and other nonprofit organizations.

