



Product: SlurryShield® PBS™

SlurryShield PBS brings a new level of application simplicity while significantly increasing slurry quality control and excavation quality assurance!

Physical Data:

Appearance: Opaque to White free flowing granular solid
Odor: Odorless.
pH: NA
Freeze Point: NA
Specific Gravity: 1.015-1.025 (Water = 1.0)

Description:

SlurryShield® PBS™ is a multifunctional synthetic stabilization fluid for use in geoconstruction excavation. SlurryShield PBS provides an increased degree of quality control over the slurry operation by simplifying the process for site personnel over historic slurry systems by eliminating the need for slurry additives and pH adjustments in most cases.

Functions:

SlurryShield PBS readily disperses under low shear agitation into water to form a clear, viscous excavation fluid. This fluid then acts within the excavation to form a non-colloidal barrier at the excavation/formation interface to control fluid loss from the excavation and to exert positive differential pressure against the exposed formation walls.

General Application Instructions:

SlurryShield PBS should be mixed initially at a minimum rate of 1.75 to 3.0+ kg/m³ of fresh water. For projects of any scale this should be done in a properly designed mixing tank, see KB's "Mix Tank Diagram" for specifics.

Table with 5 columns: Formation Type, Average Initial SlurryShield PBS Dosage (lbs/cu yd, lbs/1000 gals, kg/m3), and Typical Marsh Funnel Visc. (sec/qt). Rows include Clay & Shale, Silt & Fine to Medium Sand, Coarse Sand & Pea Gravel, and Coarse Sand & Cobbles.



The dosage rate of the SlurryShield PBS in the initial make-up water should always err on the side of caution. Use of the higher levels recommended in the dosage chart should always be applied when in doubt. Only after the slurry has been established with a secure dosage and viscosity, should subsequent dosages be reduced.

Formation Type	Average Maintenance SlurryShield PBS Dosages "True Project Consumption Dosage"			Typical Marsh Funnel Visc.
	lbs/cu yd	lbs/1000 gals	kg/m3	sec/qt
Clay & Shale	1.43-2.53+	7.10-12.52+	0.85-1.50+	>60-95+
Silt & Fine to Medium Sand	1.60-2.95+	7.93-14.60+	0.95-1.75+	>60-115+
Coarse Sand & Pea Gravel	1.69-4.22+	8.35-20.85+	1.00-2.50+	>70-125+
Coarse Sand & Cobbles	1.69-5.06+	8.35-25.00+	1.00-3.0+	>80-125+

Maintenance dosages, for addition to recaptured slurry listed above are merely guidelines from typical experience. When in question as to the appropriate maintenance dose always err on the side of caution. Use of the higher levels recommended in the dosage chart should always be applied when in doubt. Maintenance addition should preferably be done in the mixing tank and not at the point of slurry entrance into the next excavation. At least one sedimentation tank, two preferably, is always recommended for recaptured slurry to pass through prior to the mix tank and the re-addition of SlurryShield PBS. **The maintenance dosage is the true project consumption and the factor from which estimated project costs are accurately calculated. The initial make-up dosage is typically a one time occurrence on a project and not relative to the overall project cost unless an improper (low concentration) initial slurry concentration is established.**

Actual Initial and Maintenance dosages will vary depending on water quality and on the porosity and chemical reactivity of the soils being excavated. It is critical to pay attention to Slurry Viscosity and Specific Gravity in the excavation regularly. If the S.G. moves more than 0.01 kilos/meter<sup>3</sup> then the slurry is loading with fines and precautions must be implemented to ensure fines are removed in the excavation and sedimentation tank. **The slurry viscosity should never drop below 60 seconds in any type of soil. When there is doubt over the correct viscosity always err on the high side as low viscosities can result in rapid increases in entrained fines and in extreme cases may result in the slurry system flipping to a native mud system.**

Additional SlurryShield PBS may also be introduced at the point of excavation or into the mix tank or agitated slurry storage tanks or through a KB Eductor emptying directly into the excavation. The addition of small quantities of PBS at the hole provides the following benefits: an abundance of gels to control fluid loss, rapid increase in viscosity to stabilize highly permeable soils, enhanced chemical adhesion within low strength soils and immediate intervention in case of emergencies or other atypical situations. When adding SlurryShield FGP at the point of excavation, please pour PBS slowly into a KB Eductor feeding into an adequate flowing stream of slurry emptying into the excavation. SlurryShield PBS may also be added directly to the stream of fluid flowing into a pile while the digging tool is one meter (3 feet) below the surface of the slurry and rotating to form a vortex within the slurry column. Avoid the agglomeration of PBS into "white gel balls" in the slurry by slowly sifting product into the fluid stream. After completing the addition of PBS to any excavation raise and lower the excavation tool from the top of the hole to the bottom to assist in proper distribution of the product throughout the slurry column. **The slurry viscosity within the excavation should never be allowed to drop below 60 seconds per quart regardless of what type of soil is being excavated.** When excavating more challenging formations, KB International's System additives will increase both slurry and load bearing performance. The more challenging the formation type the more requirements for various SlurryPro Specialty Additives.



When excavating more challenging formations, KB International's System additives including Instafreeze should be utilized in combination with a SlurryPro or SlurryShield system to increase slurry stabilization performance. The more challenging the formation type the more requirements for various SlurryPro Specialty Additives.

**When extraordinary geotechnical or water conditions arise during actual excavation, the SlurryShield PBS fluid is completely compatible with KB International's full SlurryPro line of additives. In the rare case that the need for one or more of these additives does come about it is always advisable to immediately contact KB for additional technical guidance. Should a KB technical personnel be on site please follow their recommendations.**

### Special Operational Precautions and Instructions:

**The specific gravity range for the slurry should be maintained from 1.025 to 1.0475 under normal operating conditions.** If low hydrostatic pressure conditions are encountered where the water table is less than 2 meters or 6 feet beneath the slurry level, the specific gravity of the slurry may require further augmentation using WeightIt or a combination of WeightIt™ and SandSeal™ to adjust the slurry S.G. accordingly.

Due to the unique characteristics of a KB Earth Stabilization System as compared to bentonite, several key operational procedures should be modified from bentonite systems. These modifications will have a major impact on the overall effectiveness and successful use of KB International's Earth Stabilization Systems. For smaller projects, please consult KB International's "General Operating, Product Addition, and Testing Procedures." For larger or more complicated projects, please contact KB International for specific project planning.

### Packaging:

SlurryShield PBS is available in two packages: 10 kilo / 22 lb. resealable plastic pails

25 kilo / 55 lb. plastic bags

### Availability:

SlurryShield PBS is available from KB International's warehouses in these geographical areas:

Charleston, SC USA

Seattle, WA USA

England

Cerritos, CA USA

San Francisco, CA USA

Italy

Hong Kong

SlurryShield PBS is a protected technology. It is covered by three US patents 5,407,909, 5,663,123 and 6,248,697 and two or more patents in Canada, Australia, Singapore, Europe and the UK. Additional patents are pending.

## **Introducing KB's Next Generation in Technology, SlurryShield®**

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**Raising the Standards to New Levels of Simplicity and Quality Assurance!**

### **The SlurryShield Primary Products:**

**SlurryShield® PBS™**  
**SlurryShield® FGP™**

### **Advanced KB Synthetic Additives Available for those Unusual Conditions:**

**SeaDrill®**  
**KnockOut®**  
**KobbleBlok®**  
**ImPac™**  
**SlurryPro MPA™**  
**SlurryPro LA-1™**  
**SandSeal® MMS™**  
**InstaFreeze™**  
**InstaFreeze C-2**  
**WeightIt™**  
**ProTek® 100**

**Please Contact KB International or one of our Agents For Assistance when Planning to Utilize our Products!**



## **Technology to Build On™**

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### **For More Information:**

Additional information on all aspects of the SlurryPro SlurryShield System is available from KB International on request. Standard Operating Procedures provide detailed recommendations for the use of the system in bored piles, diaphragm walls, and other applications.

The information in this bulletin is given in good faith and is accurate to the best of our knowledge. Because we can neither anticipate nor control the different conditions under which this information and our products are used, we make no warranty of performance, expressed or implied. Typical properties given herein are not specifications. Our policy is to continually review product formulations and manufacturing to assure technical suitability and cost-effectiveness. Product characteristics are subject to change without notice. Users of our products are responsible for compliance with government regulations and patent laws. The SlurryPro System is covered by the following US Patent's, 5,407,909; 5,663,123; 6,248,697; and 6,897,186 and various corresponding International patents. Other U.S. and International patents pending. All users should discuss the product with an appropriate representative of KB International, LLC before utilizing the product.