



Product: ImPac®

Physical Data:

Appearance: Opaque to White free flowing granular solid
Odor: Odorless
pH: NA
Freeze Point: NA
Specific Gravity: 1.00-1.01 (Water = 1.0)

Description & Function:

ImPac® is a specialty polymer in dry form which functions to increase the strength of the SlurryPro® or SlurryShield® membranes' soft grout attributes in low cohesion soils. It also assists in controlling fluid loss by strengthening the SlurryPro or SlurryShield membrane. ImPac may also be made into a low concentration liquid to assist with rapid sedimentation of suspended fines from the slurry.

General Application Instructions:

ImPac, like SlurryPro MPA, acts as a catalyst for the vinyl polymer CDP. ImPac's actions are milder than MPA and in many formations it can be used in place of MPA. However, in more challenging situations dilute MPA should still be incorporated in the slurry system. ImPac may be added either directly in dry form at the mix tank or at the point of excavation. When adding at the point of excavation slowly pour ImPac into a KB Eductor feeding into an adequately flowing stream of slurry emptying into the excavation. ImPac may also be added in both dry and dilute solution forms directly to the excavation. Typical dry addition rates are as follows:

Formation Type	Average ImPac Dosage			Typical Marsh Funnel Visc.
	lbs/cu yd	lbs/1000 gals	kg/m3	sec/qt with Advised CDP
Clay & Shale	0.034-0.084	0.167-0.417	0.02-0.05	60-75
Silt & Fine to Medium Sand	0.051-0.135	0.250-0.668	0.03-0.08	65-120
Coarse Sand to Pea Gravel	0.067-0.169	0.334-0.835	0.04-0.10	75-150
Gravel to Cobbles	0.084-0.253	0.417-1.252	0.05-0.15+	85-150+

ImPac may also be added in dilute form at a ratio of approximately one to half a percent or less concentration (two to three tablespoons of dry ImPac to 5 gallons (20 liters) of water) directly to the excavation. When applying dilute ImPac solution directly to the excavation it should be slowly added in half pint to one pint quantities to the stream of water or slurry entering the excavation after every few feet of excavation.

When excavation instability is encountered the dilute ImPac solution should be added by placing one to two and a half gallons of dilute ImPac solution into a zip lock baggy with a weight, such as a rock

or small piece of rebar to assist in sinking the bag to the bottom of the excavation. The baggy should also be punctured two or three times just below the zip lock to insure any captured air can escape allowing the bag to sink. The punctures also allow for the liquid product to disperse within the slurry column as the baggy is sinking. KB has nicknamed this addition method a “bomb” addition. Once the dilute ImPac “bomb” has been dropped to the bottom of the excavation the digging tool should be placed back in the excavation and lowered to the bottom to crush the remaining product from the “bomb”. After crushing the bomb, the excavation tool should be slowly rotated and raised and lowered approximately 3 meters (10 feet) within the slurry column. Then excavation should resume. In more difficult soils MPA should be utilized in conjunction with ImPac.

When used to assist in stabilizing a sloughing sidewall, the dilute ImPac “bomb” should be added immediately after “bombs” of full strength LA-1 are added, broken and distributed within the slurry column. When breaking “bombs” of LA-1 and dilute ImPac the excavation tool should be slowly counter rotated while raising and lowering the tool approximately 2 to 3 meters from the bottom of the excavation forcing the treated slurry out against the excavation sidewalls. In more difficult soils dilute MPA should be utilized in place or in combination with ImPac. When this procedure does not completely stabilize the sidewall KB’s InstaFreeze System should be immediately applied.

Prior to and during excavation completion and clean out, the dilute solution of ImPac may be delivered to the bottom of the excavation in two-gallon zip lock bags with rocks placed in the bag or bags and a few small holes poked in each bag to assist in product distribution. The clean-out bucket or grab should then be lowered and slowly manipulated to break the ImPac bags. The excavation tool should then be raised and lowered approximately 3 meters (10 feet) off the bottom of the excavation. This raising and lowering process should be repeated twice. The excavation tool should then be placed on the bottom of the excavation and one last bite taken from the base of the excavation to assist in forming a seal at the base of the tool preventing the bucket or grab jaws from leaking spoils as it is withdrawn. The clean out bucket should then remain at rest on the bottom of the pile for a few minutes allowing the ImPac solution adequate time to react with the fines within the slurry column above the bucket. The clean-out bite should then be slowly withdrawn from the excavation. If the fluid still does not meet the sand content specification repeat the above procedure adding more dilute ImPac solution in bags. Clean-out passes with a properly designed clean-out tool should continue until the sand content, taken with a proper bottom hole sampler approximately two to three feet from the bottom of the excavation, reads **less than 1% entrained sand (or as specified) by the standard API Sand Content Test Method where wash water is substituted with chlorine bleach**. If the fluid still does not meet the sand content specification, repeat the above procedure adding more dilute ImPac solution in bags. In more difficult soils MPA should be utilized in place or in combination with ImPac.

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.

Unusual site conditions may arise during actual excavation, in which case the recommendations from KB technical personnel must always be followed.



Special Operational Precautions and Instructions:

The specific gravity range for the slurry should be maintained from 1.01 to 1.04 under normal operating conditions. If low hydrostatic conditions are encountered where the water table is less than 3 meters (10 feet) beneath the slurry level, the specific gravity of the slurry should be increased as required using WeightIt or a combination of WeightIt™ and SandSeal™ to raise 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:

ImPac is available in: 10 kilo / 22 lb. resealable plastic pails

Availability:

ImPac 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 | | |

KB's SlurryPro® CDP™ System, including additives, and SlurryShield® Technology have been awarded four US Patents, No. 5,407,909, 5,663,123, 6,248,697 and 6,897,186 as well as various corresponding international patents. Additional patents are currently pending.

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For More Information:

Additional information on all aspects of the SlurryPro CDP Vinyl 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.

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