GENERAL GUIDELINES - RAMMING/HAND-PACKING
RESCO CASTABLES

A. STORAGE:

1. Resco Castables are packaged in moisture resistant bags, however, they should be stored in a dry place free from excess dampness. Storage on dry concrete, asphalt, or other impervious surface will prevent moisture from the ground condensing under the plastic pallet cover and wetting the bag of material which may result in loss of strength.

B. PREPARATION:

1. Use clean tools and equipment. Contamination can affect setting and strength of castables.
2. Application surfaces must be clean and free of foreign (loose material, oil, rust...) matter.
3. Use only clean, cool (35-60^{o}F, 2-16^{o}C) water suitable for drinking.
4. Use planetary, Hobart-type, mixer. The "B" flat agitator and mixing bowl should be made of stainless steel. The maximum gap between the blade and the bowl at the bottom and sides should be about 0.25 inch (6 mm). Mixing efficiency and product quality may be reduced if the clearances are greater and if the mixing bowl is more than or less than 1/3 full.
5. For best results, material and ambient temperatures should be 60-85^{o}F (16-29^{o}C) during mixing , placing, and setting.

C. MIXING:

Mix only as much material at one time as can be applied before material stiffens. Stiff material becomes crumbly, loses plasticity, and does not knit together. Discard stiff material, do not remix.

1. Place the required amount of material into the mixing bowl. Begin dry blending at the slow agitator speed, about 70 to 110 RPM's.
2. Add stainless steel needles, if required, during the dry mixing cycle.
3. Add the minimum amount of specified water to the dry material, and allow to mix on slow speed for approximately 30 seconds.
4. Increase the agitator to fast speed, about 175 to 210 RPM's.
5. Adjust the water content to achieve a dough or putty-like consistency after 3 to 6 minutes of mixing. Three or four distinct lumps of material will roll around in the bottom of the mixing bowl. Use that same "final" water content on all batches or until a change in the appearance is noted, if for example, the ambient temperature gets hotter or colder. If a change should occur, adjust the water.
6. Add a little more water if the batch does not knit together easily on installation. The batch will stick to the mixing bowl and blade if too much water is used.

7. Wash the mixing and placing equipment periodically with clean water and dry.

E. PACKING

1. Pack the material into the area being lined, working it as needed to fill all holes and eliminate air bubbles. Mallets, hammers, air rammers and trowels are commonly used for this step.
2. Trim excess material. Be careful not to cut too deeply into the lining or pull the material away from the anchor metal. Smooth the surface using a trowel, or Teflon block. DO NOT use the palm of the hand or any absorbent material. DO NOT apply water.

F. CURING

1. Cover all exposed surfaces with a polyethylene film, or spray with a commercial curing compound, or periodically water mist for at least 24 hours after casting. This will prevent water evaporation required for proper hydration and maximum properties.
2. Do not disturb casting during the first 24 hour period after installation.

G. EXTREME WEATHER PRECAUTIONS:

1. Extreme Cold Weather:
   - Keep the material, and installation area above 60^{o}F (16^{o}C) during installation and 24 hour curing period.
   - Do not allow lining to freeze during 24 hour curing period. After the curing period, the lining may be subjected to freezing conditions, however, the castable should be at least 60^{o}F (16^{o}C) before dry out is started
2. Extreme Hot Weather:
   - Keep the material, and installation area below 85^{o}F (29^{o}C) during installation and 24 hour curing period. Elevated temperatures may reduce working time, and cause cracking due to surface dryout.
   - Store the dry castable in a cool area prior to mixing.
   - Use cold water, less than 45^{o}F (7^{o}C) during mixing.
   - Shade or water spray the exterior surface of the unit.