

Making slip from WSS filter cake.

Introduction:

Clayworks Potters Supply offers WSS slip for sale in the form of filter cake. To convert the cake to slip it must be blunged with water and defloculants added to achieve the ideal outcome.

It is essential that care is exercised during the preparation of the slip and all additions should be carefully measured and added in sequence. It is recommended that a logbook be maintained in which a progressive record is kept of the quantities of filter cake, water and defloculant used and the resultant litre weight and fluidity.

The procedure is a guide for the conversion of 6 filter cakes to slip. If other quantities of filter cake are to be converted to slip the quantities of water and defloculant can be directly scaled.

The precise quantities of water and defloculant will vary from batch to batch. It is recommended that the slip is aged for 24 hours before use and that the litre weight and fluidity are checked each day before use.

Equipment Required:

- A blunger capable of holding 200 litres of slip, with a mixing head that is located near to the bottom of the tank.
- A set of electronic scales able to weigh 2 kilogram with an accuracy of ± 1 gram.
- A Forde Four cup, or other equipment for measuring fluidity.
- A robust knife for cutting the filter cake.
- A constant volume container for determining the litre weight.
- At least an 80 mesh sieve.
- Two bottles fitted with lids, one for Dispex and the other Sodium Silicate, label each.
- A syringe for dispensing small amounts of defloculant.

Materials Required:

- 6 x WSS filter cakes.
- 47 litres Water.
- 24 gms Soda Ash.
- 50 gms Sodium Silicate.
- 170 gms Dispex.

Slip Specification:

Litre weight = 1775 ± 5 grams/litre.

Forde Four cup = 40 to 80 seconds.

Mixing Technique:

- Ensure that the blunger is clean.
- Measure 47 litres of water into the blunger.
- Weigh, 24 grams of soda ash and 47 grams of sodium silicate and add to mixer. Run the mixer for 20 minutes.
- Cut the first cake into 6 pieces. Shred each piece into smaller pieces for addition to the blunger. Do not add more cake until the first cake has been dispersed.
- Continue to cut, shred and add cakes, one at a time until the slip becomes quite thick.
- Add small quantities of Dispex and Sodium Silicate until the slip is mixing well. Do not mix sodium silicate and Dispex.
- Continue adding cakes, one piece at a time. Add the minimum amount of Sodium Silicate and Dispex necessary to keep the slip mixing, be careful not to over deflocculate the slip.

Setting Up the Slip:

The litre weight must be adjusted to 1775 ± 5 grams per litre by adding more cake or water as required. Record adjustments in your log book for future reference.

Once the litre weight is correct check the fluidity using the Forde Four cup; add Dispex, in small quantities, until the correct fluidity is achieved. Record each addition.

Ageing of the Slip:

We recommend that the slip be aged for 24 hours before use. Before using the slip, on any day, we recommend the set up is checked and if necessary adjusted.

To remove any particles introduced to the slip during transport, storage or blunging pass through an 80 mesh sieve before use.

Please note:

- Do not mix the Sodium Silicate and Dispex together and store each in a dedicated bottle.
- Over deflocculation can cause separation of the suspension and loss of the batch of slip.
- Always check and correct the litre weight before adjusting the fluidity.
- All volumes are best estimates based on testing undertaken at Clayworks. The actual quantities will vary from batch to batch.
- Do not stop the mixing process until all of the clay has been added and the fluidity is correct.