

POND & LAKE CONSTRUCTION

- Since bentonite powder is a dusty and highly absorbent mineral, we suggest carrying out the work on a calm and dry day. The use of goggles, dust mask, and gloves is recommended.
- Remove any large lumps and stones from the soil, which needs to be sufficiently dry to mix easily with the bentonite powder.
- In the case of very porous soils (such as those with a high content of stone, limestone, chalk or peat) we suggest using a bentonite enriched sand layer. Suitable fine sand for mixing is readily available from builders' merchants.
- To achieve a good seal, the bentonite powder must be thoroughly mixed with the soil or sand.
- Mixing can be carried out by use of a cement mixer. Add the soil or sand first, followed by the bentonite.
- For sandy soils, porous soils and bentonite enriched sands we suggest using 10 Kg of bentonite per square metre. For clayey soils, as little as 4 kg per square metre may be adequate.
- The bulk density of bentonite powder is around 850 Kg /m³. This is much lower than soil or sand, so it is advisable to weigh the first shovels or buckets to ensure that the desired ratio is being used. (Typically, sands have a bulk density of around 1600 Kg/m³).
- Mix the bentonite with the soil or sand until a uniform colour is achieved. Take a sample to see if the bentonite is binding the soil (or sand) by squeezing a handful. If the mix is dry and powdery, add some water to achieve swelling and bonding. If the mix is sticky, too much water is present and more soil, sand or bentonite should be added.
- Lay the prepared mixture over the area of the proposed pond site and rake to obtain an even layer. Once it has been tamped hard or firmly compacted with a heavy roller, the mixture should form a dense layer of 20 to 25cm in depth. The harder the soil is packed the lower will be its permeability and the better its long term resistance to the passage of water. Hard rammed bentonite enriched soil will have a density of approximately 1.5 tonnes per cubic metre.
- Apply a top layer of 5 to 10cms of soil. This should also be compacted by tamping or heavy rolling. The bentonite and soil (or sand) mixture is now trapped as the middle layer of a sandwich, and the bentonite cannot leak out.
- Ideally, the sides of the pond should not have a gradient exceeding 1 in 3 otherwise slippage can occur during preparation or during the life of the pond, leading to water loss at the perimeter.
- Remember it may be necessary to top-up the water from time to time to offset evaporation losses during warm weather.
- Our guidelines are offered in good faith but total success cannot be guaranteed. The movement of worms and the roots of aquatic plants may puncture the bentonite enriched seal.