BEST DRILLING CHEMICALS
SINCE 1976

Bentonite QSE/QSE Plus (Sealing material QSE)

The QSE sealing material is of high quality, made of clay in the form of cylinders with a diameter of 6 mm or 8 mm and a length of 5-12 mm. When QSE cylinders come into contact with water, they swell, increasing their volume, leading to the formation of a homogeneous plastic mass used as a sealing material. It is assumed that from 1 kg of QSE, approximately 1 liter of sealant is obtained.

Application

There are numerous possibilities for using QSE cylinders, provided that there is sufficient water available and no obstacles to placing them where sealing is desired. The cylinders are used wherever a plastic seal with a very low permeability coefficient (~10-8 m/s) is required. The product is suitable for cutting off aquifer layers in well holes as well as for various engineering works. Once maximum swelling is achieved, the material remains plastic and “cooperates” with the surrounding layers. However, it should be remembered that in this case, there is no permanent binding process. The resulting seal, when exposed to direct atmospheric conditions, will tend to gradually release water and shrink, but will regain its properties upon contact with water again.

Physical properties

FORM	Cylinders 6/8 mm dia. and 5-12mm length
	0.9 – 11.0 kg/l
SPECIFIC GRAVITY	1.9-2.1 kg/l
MOISTURE	max. 18%
WATER ABSORPTION	120 – 150%
SWELLING PRESSURE	min. 12.5 kN/m2
PERMEABILITY	10-12 m/s after 48 hours in a closed container fully saturated with water.
BEGINNING OF SWELLING	~15 min
SINKING SPEED IN WATER	~20 m/min

If there is a concern that the QSE cylinders will start swelling too early in the annular space, they can be

mixed with fine gravel, which will accelerate their sinking speed. The sealing material will “surround” the gravel, preventing any negative effects on the permeability of the mixture. Given the sinking speed and the onset of swelling, we do not recommend using QSE cylinders in holes deeper than 300 m.

Packaging

QSE cylinders are available in 25 kg plastic bags (40 bags per pallet) or in so-called Big Bags (1000 kg).

NOTE After opening the bag, due to its high hygroscopicity, the material should be stored in a dry place.