

TREATMENT OF WATER FROM BENTONITE SLURRY

DESCRIPTION

What Is Bentonite Slurry?

Bentonite slurry is used in **construction and civil engineering** works during the **trench shoring** (provisional containment structure) process, for its containment properties in foundation walls before the concrete sets. To this end, the slurry (bentonite suspension in water) must maintain certain rheological properties, which help support the walls during the excavating or drilling process. They also provide **cooling functions** in the **hydrofraise** cutting head.

The slurry **can be used several times**, usually three cycles, after which they are renewed.

Used slurry is diverted to the treatment line, where with the help of a filter press, water is separated from the bentonite cake.

Why Does Water From Slurry Require Treatment?

The problem arises once the slurry is used and subjected to the separation process by applying a filter press, in order to **reuse the water to generate new slurry**. The water, due to the **loss of quality** it suffers during the construction process, interferes with the proper functioning of bentonite, forming an **unstable slurry**, which **tends to flocculate**, and thus loses the necessary properties for application.

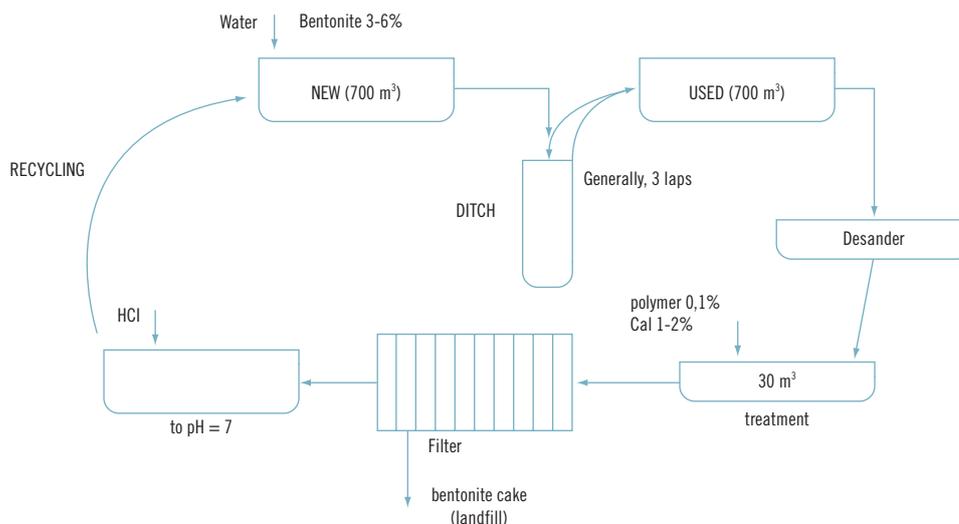
Water from bentonite slurry is characterised by high conductivity, usually greater than 8000 $\mu\text{S}/\text{cm}$ **and a very high pH**, Around 12 or more due to the high concentration of Na^+ and Ca^{2+} ions, with values around 400 ppm, respectively. The presence of these ions is primarily responsible for the flocculation of slurry when reusing the filtered water.

Processing these waters entails a considerable **environmental improvement**, in addition to **cutting operating costs** by **reducing water consumption** and the dumping of **effluent** which, due to the physicochemical characteristics acquired, **is not suitable for discharge** under current legislation.

IMDEA WATER SOLUTIONS

The bentonite slurry water treatment process patented by IMDEA Agua comprises the following stages:

- Removal of carbonates by aeration/bubbling with CO₂
- Calcium carbonate sedimentation
- Each of these stages is designed and adapted to each situation based on the patented process.



Bentonite cycle on site

IMPLEMENTATION SECTOR

- Construction and civil engineering companies
- Mining sector
- Engineering companies

TECHNOLOGY KEYWORDS

Water treatment, bentonite slurry, bentonite

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