

Case Study



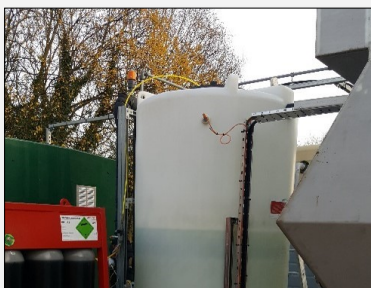
Lamella Separator



Lamella Separator



Control & Quality Monitoring



Dosing Tank

Suspended Solids Filtration System Water Re-Use — Global Ceramics Materials

The Challenge

- **Waste Bone Ash, Ceramic Flux & Bone China Body Clay**

The manufacturing process uses water as a transport medium for the product, pumping it around as a thin sludge.

- ⇒ High material wastage
- ⇒ Large footprint of existing treatment process
- ⇒ Hazardous chemical handling
- ⇒ Risk of breaching discharge consent

- **Evaluation & Design**

Prior to final design, Cornelsen undertook:

- ⇒ Bench test at Cornelsen premises
- ⇒ Full scale pilot trial with stock rental plant.

- **Implementation**

- ⇒ Pre-Filtration Stage with lamella separator.
- ⇒ No chemical addition facilitates re-use of waste material.
- ⇒ Post separation pH correction with carbon dioxide removes hazard of previous sulfuric acid dosing system.
- ⇒ Discharge monitoring for pH & turbidity with automated divert valve to temporary storage
- ⇒ Comparable running costs thanks to the effective removal of alkaline suspended solids prior to the pH correction
- ⇒ Control system all designed, built & programmed in-house

- **Highlights**

- ⇒ Smaller Footprint
- ⇒ Increased product recovered for re-use.
- ⇒ Increased value to the process
- ⇒ Back-up temporary divert to maintain production in event of quality reduction
- ⇒ Discharge compliance

Treatment Plant

- Stainless steel lamella settlers (2)
- Dosing equipment for flocculant
- Batching tank, with CO₂ pH correction equipment
- Discharge pump
- Discharge quality monitoring equipment :
 - ⇒ Flow
 - ⇒ Volume
 - ⇒ pH
 - ⇒ Turbidity
- Control system, PLC based, including datalogging and controlled air outlets to power client sludge pumps for sludge removal from plant.