econ INDUSTRIES

Case Study

Sludge suspension from numerous differing steel industry residues

econ industries

Schiffbauerweg 1 • 82319 Starnberg • Germany

Tel.: +49 8151 446377 - 0
Fax: +49 8151 446377 - 99
E-Mail: info@econindustries.com
Web: www.econindustries.com

Zero industrial waste … !

Sludge suspension

by econ industries turbulent mixing technology

econ industries have been active for many years as a supplier of mixing units for the metal and steel industry. One of our long term clients requested that econ quote a system to produce a highly viscous suspension from numerous differing residues. The aim was to use this suspension as a protective layer inside the transport vessels of the hot, molten slag. Thus, a number of differing technical challenges had to be solved.

The origin of the sludge to be suspended was different filter-presses. Existing agglomerates inside this sludge had to be broken down, fine enough to pass through diffusers with openings less than 5 mm. Some additives had to be added to stabilise the suspension and prevent sedimentation inside a buffer vessel. It was necessary to adjust the viscosity, so that changes in the input consistency of the residues did not affect the use of the product.

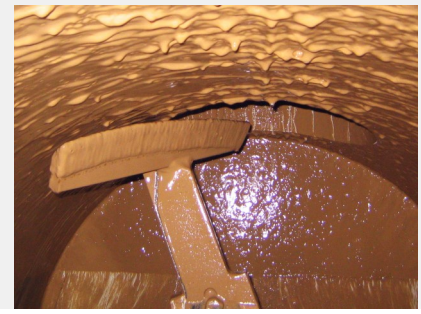
econ industries solved this challenge using a customised 1,000 litre continuously working mixer. The design on the inlet and discharge side as well as the equipment for the adjustment of the filling level inside the mixer was modified. Special mixing elements were used to optimise the back-mixing effect during the process. Choppers were installed to disperse the agglomerates. On the input side different dosing devices were delivered and connected to the unit, such as screw conveyors for dry additives and sludge. Finally the pumping and piping was provided by econ industries, including an intermediate storage vessel and a spraying nozzle for the final use of the suspension.

Performance data

Mixer type:	1,000
Feeding rate sludge:	More than 5 m³/h
Retention time mixing:	Less than 6 minutes
Grain size output:	Max. 5 mm
Feeding rate to spraying:	2 m³/min

Installation of the mixing unit to the building

Final mixer installation inside the building



Look inside the mixer during commissioning

Design characteristics

- Equipment erected in an existing, extremely narrow building; assembly possible only through the roof
- Already existing conveying equipment had to be integrated into the unit for economic reasons
- Highest process flexibility to use other sludge residues with the same result
- Short manufacturing and delivery time of only 6 months from contract signature to realisation
- Robust execution to also deal with foreign parts, coming from container handling of the incoming sludge