



simΔtec

CEMWASH

WE WILL TAKE CARE OF YOUR CEMENT SLUDGE

Save time and money thanks to Simatec's innovative recycling technology. The smart way to process concrete and sludge remains when cleaning concrete mixing vehicles. A recycling system which conserves valuable and natural resources. Return sand and aggregates from the concrete remains back to your cement mixing plant and filter the separated grey water (cement sludge) using a filter press to extract water which you can feed back into your process again.

Simatec's concrete recycling system consists of the following main components:

- Solid separation
- Cement sludge collection tank with agitator
- Sludge pump
- Chamber filter press
- Acid dosing unit for filter cloth regeneration
- Neutralisation tank

Solid separation

The solids resulting from cleaning concrete mixing vehicles or contained in ready-mixed concrete residues are collected, cleaned and separated. We use discharge augers or drum separators to extract these solids (sand, aggregates and foreign organic substances). The grey water from the overflow contains particles which are normally not larger than 0,2 mm. The coarse material – that is to say sand and aggregates – can be returned to the concrete mixing plant and used again. As an option, a small screening machine can be used at the outflow of the separating machine to separate the sand and gravel.

Cement sludge collection tank with agitator

This container is used as a buffer for the grey water which is contaminated with cement and chemicals. Depending on the local conditions, the buffer container is made of concrete and provided by the customer. Then Simatec will add a steel support structure for the agitator. This agitator prevents the sludge settling. There is also a level sensor fitted to determine the sludge level.

The collection tank can also be designed to fit in a mobile 20 foot container version. This unit contains a lockable and heated pump room for the sludge pump.

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Sludge pump

An electrically-driven or air-driven double diaphragm pump which pumps the grey water (sludge) into the chamber filter press. It is able to suck up grey water up to a height difference of 2m. The pump is extremely efficient, easy to maintain and very durable, even with highly-abrasive sludges.

Chamber filter press to remove water from sludge

Simatec's chamber filter press to treat grey water functions like conventional chamber filter presses used in the gravel industry. However, it is equipped with some special features which have been created by Simatec's specialists over many hours in the laboratory and which are essential to filter cement-bearing sludges. This experience ensures that our systems function properly as well as the maintenance and operating safety.

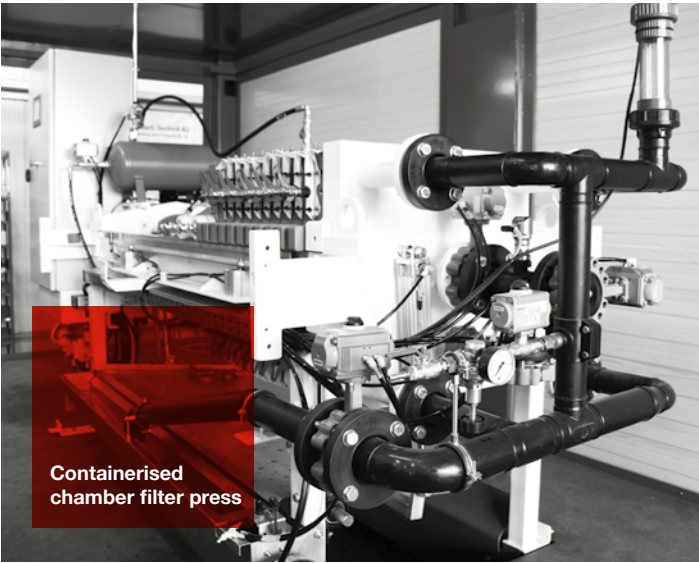
Acid dosing unit for filter cloth regeneration

From time-to-time it is necessary to clean the filter cloths of any lime deposits so that they maintain porous and to ensure that the efficiency of the filtration process is retained. The cloths are regenerated by the addition of acid during the cleaning procedure. The acid dosing unit and the acid are normally provided by the customer on site.

pH neutralisation of the filtrate

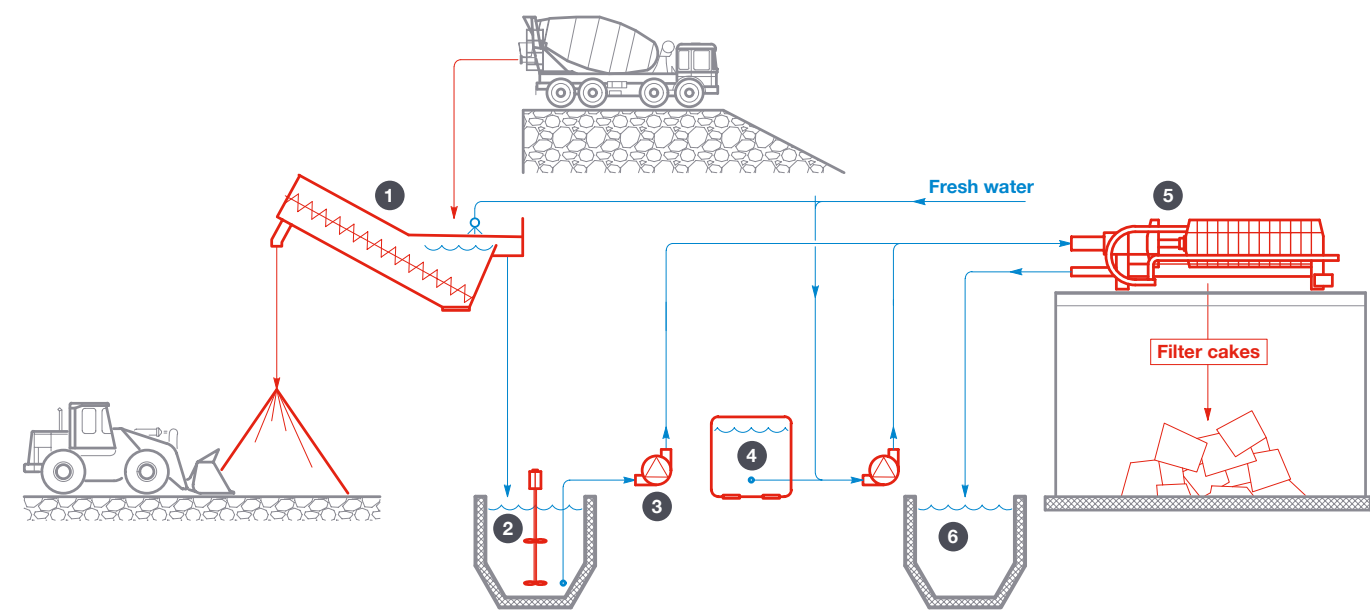
This plant component can be activated if needed for automatic neutralisation of the filtrate. A pH sensor fitted in the filtrate container measures the input value. Carbon dioxide (CO2) is used as an environmentally-friendly neutralising agent. The dissolved carbon dioxide reacts with the water to form carbonic acid, this neutralises the alkaline components in the water thereby lowering the pH value. There is a final pH measurement taken at the overflow which controls the neutralisation process.

This module can also be designed to fit in a containerised unit. The required components and installations are integrated in the 20 foot unit.



Flow diagram – representation of the process technology

1. Solid separation/2. Cement sludge tanks with agitator/3. Sludge pump/4. Acid dosing unit for filter cloth regeneration
5. Chamber filter press/6. Filtrate and neutralisation tanks





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