Our dry lime hydration plant constitutes a system in which quicklime is slaked in a continuous process with just enough water for powdery hydrated lime to be produced.

**AREAS OF USE**

1.1

The SCHAUB hydrator can be used wherever hydrated lime is required. The quantity of hydrated lime that is needed has a critical bearing on profitability. The system is also suitable for the particular requirements of waste-to-energy plants.

**PROCEDURE**

1.2

The dosing unit delivers the quicklime (CaO) into the pre-hydrator, where water (H2O) is added by means of a nozzle and mixed with the quicklime. In the downstream hydrator, the quicklime reacts completely with the added water to produce dry Ca(OH)2, the hydrated lime.
PLANT DESIGN

1.3

The design of each plant is tailored to the particular needs of the operator. The following factors are among those considered:

- Hydrated lime consumption
- Variable vapour scrubbing
- Variable lime dosing
- Adaptation of siting to local conditions

MAIN ELEMENTS OF THE DRY LIME HYDRATION PLANT

2.0

The main assemblies are as follows:

- Storage
- Pre-hydrator
- Dosing unit
- Hydrator
- Vapour scrubbing

STORAGE

2.1

The dimensions of the quicklime silo depend on the requirements for the supply and standby time and the replenishment capacity. This also applies for the silo accessories, which must be selected on a project-specific basis.

DOsing UNIT

2.2

The dosing unit comprises a cellular wheel sluice for dosing and a weighing unit. Weighing can be achieved with the following methods, for instance.

a) Weighing screw

The weighing screw is a continuous measuring process, which offers the advantage that the system can be continuously adjusted.

b) Weighed feed hopper

The hopper is positioned on weighing cells. Weighing takes place in a differential proportioning weighing system. The advantage over a weighing screw is the greater dosing accuracy.
The hydrator is located after the pre-hydrator in the process chain. This is where quicklime (CaO) that has been mixed with water reacts completely in an exothermal reaction to produce dry, powdered hydrated lime, Ca(OH)₂. To monitor the process, temperature sensors are installed which adjust the supply of water in the pre-hydrator for that purpose. To ensure that the process material is mixed thoroughly with the hydration water and to prevent caking caused by the product, the pre-hydrator is designed as a double-shaft paddle screw. The geometry makes this particularly suitable for material that is likely to cake. The product is exposed to high shearing forces from the mixing and kneading.

The mixing tools do not have any conveying direction, which means that the main hydrator operates entirely according to the displacement principle. The fill level, and thus also the residence time in the main slaker, can be adjusted manually by plates of different heights at the discharge. The optimum setting is done at the time of commissioning to deliver the best possible product.

The sophisticated interplay of the measuring and control components with the machine technology ensures optimum product quality.
VAPOUR CLEANER

2.5

The dry lime hydration plant offers the following options for treating the vapours.

a) Vapour collecting chamber

If there is a facility in the plant that allows the vapours that arise in the process to be drawn off over a vapour pipe into the flue gas channel, a vapour collecting chamber can be installed on the pre-hydrator. To prevent caking in the vapour pipe, a water curtain is generated in the collecting chamber to pre-clean the vapours. The cleaning is done in counterflow with water finely injected from a nozzle. The needed water is provided through a bypass from the hydration water pipe.

b) Filter system

Another option is to use a filter system to clean the vapours. The filter system is installed on the hydrator. In this variant, the required negative pressure is produced by a ventilator at the filter.

Because of the product properties, the filter material is moisture-repellent and heatresistant. To ensure that the filter does not clog up, it is cleaned automatically on a timed cycle by compressed air in counterflow.

 Provision is made for the filter system to be heated so that the vapours do not condense in the filter.

MATERIAL HANDLING SYSTEM

2.6

We offer suitable material-handling systems for conveying the hydrated lime from the SCHAUß hydrator to the place of use.

OUR RANGE OF SERVICES COMPRICES:

- Plant engineering
- Consultancy and design
- Engineering
- Service and provision of spare parts
- Restoration and modernisation

CERTIFIED QUALITY – WE ARE CERTIFIED TO

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SCHAUB Umwelttechnik GmbH
Provinstraße 52
D-88153 Augsburg
Managing Director: Michael Schaub
+49 821 – 45 59 86-0
+49 821 – 45 59 86-29
kontakt@schaub-systems.com
www.schaub-systems.com

INTERESTED? GOT ANY OTHER QUESTIONS? JUST CALL OR SEND US AN E-MAIL.