

Technology Portrait:

Doosan Lentjes semi-dry Circoclean® Flue Gas Cleaning

Our semi-dry Circoclean® process is a proven, robust, wastewater-free process for the separation of various pollutants such as SO₂, SO₃, HCl, HF, dioxins and furans, as well as heavy metals such as mercury from the flue gas.

The process

Before entering the circulating fluidised bed reactor (Circoclean® reactor), the absorbents are injected into the flue gas. Hydrated lime (Ca(OH)₂) and activated carbon (AC) are usually used.

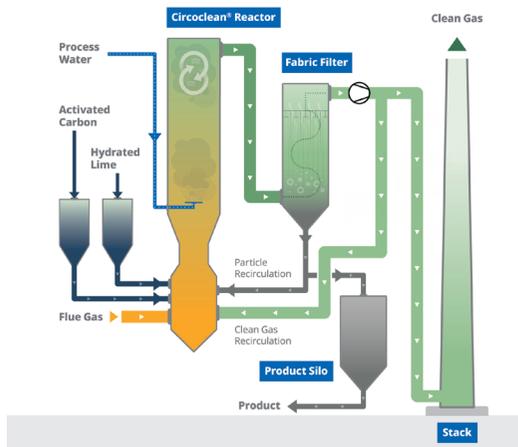
The flue gas flows through the reactor from below, causing the fly ash contained in the raw gas and the additives to form a fluidised bed. Acidic components in the gas, dioxins, furans and heavy metals are separated in this fluidised bed. Due to an intensive mass transfer and a high velocity in the circulating fluidised bed, a high separation efficiency is achieved.

The optimum flue gas temperature and moisture content for the operating conditions are set by the additional injection of water into the Circoclean® reactor.

The gas then enters the fabric filter. After the separation of solid particles in the filter, a large part of the additives is returned to the Circoclean® reactor to achieve efficient use of the absorbents.

Optimised design

Our Circoclean® flue gas cleaning process benefits from an optimised design that significantly reduces the required footprint. The design eliminates the use of high wear rotating parts, which not only reduces investment costs but also maintenance. This design ensures a high degree of plant availability. The hydrated lime used as an absorbent can be obtained on site from burnt lime to further reduce operating costs.



DOOSAN Lentjes

The advantages of our semi-dry Circoclean® flue gas cleaning at a glance:

- ▶ Proven technology with worldwide references in various fields of application
- ▶ Compliance with all emission limits according to European BREF documents and 13th, 17th and 44th BImSchV
- ▶ Almost complete separation of SO₃, avoiding maintenance work related to sulphuric acid corrosion
- ▶ Comparatively low investment costs and reduced maintenance requirements
- ▶ Wastewater-free operation, contributing to high cost efficiency
- ▶ Insertion of wastewater from downstream wet treatment stages possible
- ▶ Flexibility to adapt to future, even stricter emission limits
- ▶ Compact design that allows easy retrofitting
- ▶ Optimised absorbent consumption through additive recirculation
- ▶ High plant availability

