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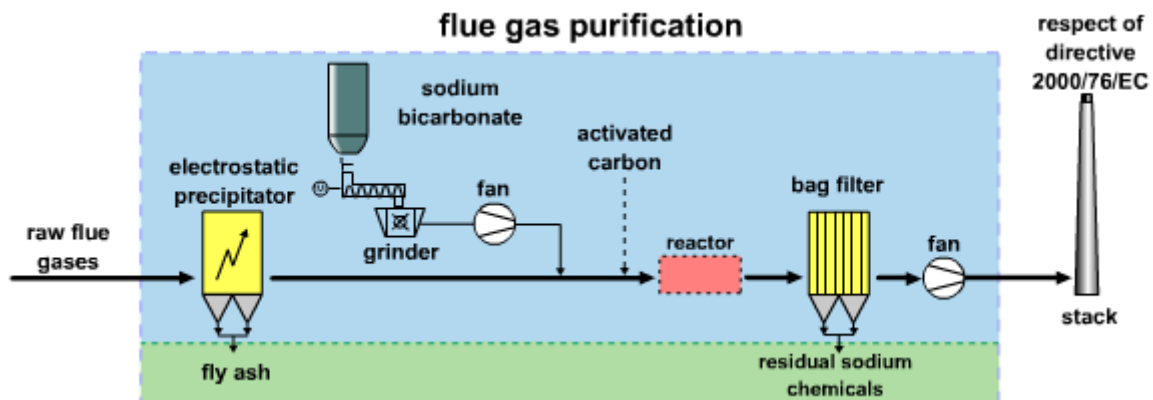


MIXER APPLICATION SHEET no. 8:

XL type Gas Mixers for dry Gas Cleaning Processes

Since years the Pittaluga Static Mixers XL type are successfully installed in Gas Cleaning Processes that are operated in dry conditions.

An example is the Solvay Neutrec[®] Process, described here below.



Introduction

The NEUTREC[®] flue gas cleaning process is based on the injection of dry, finely ground sodium bicarbonate into the gases to be cleaned.

Flue gas cleaning

The composition of the gases to be cleaned depends largely on the process generating them. Even so, very generally they contain:

- dust (fly ash)
- acid components: hydrochloric acid (HCl), sulphur dioxide (SO₂), hydro-fluoric acid (HF) and nitrogen oxides (NO and NO₂), ...
- heavy metals (lead, mercury, cadmium, etc.)
- dioxins and furans.

Sodium bicarbonate

The sodium bicarbonate, stored in silos or in bigbags depending on the applications, is ground to an optimal granulometry and immediately injected into the gases.

Reactor

The raw gases at the injection point are at a temperature in excess of 140°C

A contact reactor is used where a staying time of one second on the reagent in the gas flue cannot be obtained.

Residual sodium chemicals

The sodium bicarbonate neutralises the acids present in the gases (in particular hydrochloric acid, sulphur dioxide, hydrofluoric acid) to form sodium salts (sodium chloride, sodium sulphate, sodium fluoride, sodium carbonate), known as the Residual Sodium Chemicals (or RSCs).



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Activated carbon

Sodium bicarbonate also possesses the property of absorbing heavy metals, dioxins and furans. The most stringent legislation in this area is met by adding moderate amounts of dry active carbon or lignite coke, which are injected simultaneously with the sodium bicarbonate.

Bag filter

The dry flue gas cleaning residues (including any active carbon or lignite coke, and the fly ash in the absence of initial filtering) are captured by a bag filter, collected and placed in silos or bigbags.

Electrostatic precipitator

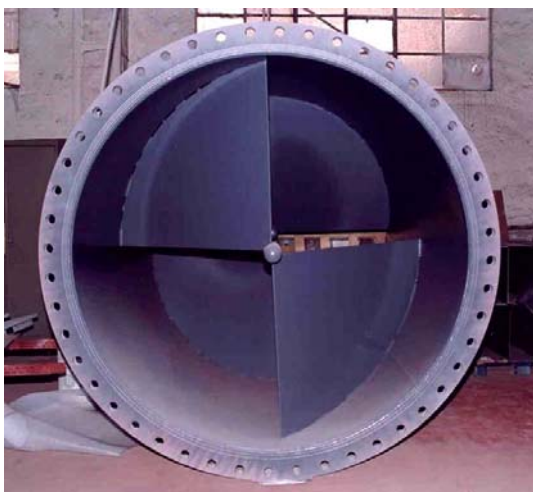
Initial dedusting (generally using an electrofilter) is carried out in certain cases prior to neutralisation: this eliminates the majority of the fly ash. Where the gases are dedusted by an initial filter before injecting sodium bicarbonate, we talk of a double filtering NEUTREC® process; in other cases, we talk of a single-filtering NEUTREC® process.

Fan and stack

A fan draws the cleaned fumes towards the stack. Even without reheating they are hot enough to avoid forming a smoke wreath at the stack mouth. Where appropriate, the gases leaving the bag filter are cleaned of NO_x in a catalytic system.

Respect of Directive 2000/76/EC

The NEUTREC® process makes it possible to meet the most stringent laws: Directive 2000/76/EC on waste incineration, decree of 10.10.96 (France), the German 17.BImSchV ...



Pittaluga Static Mixers XL main features:

- ✓ No moving parts, installed after the solid additives injection, to get a full contact between pollutants and absorbents
- ✓ Excellent, predictable homogeneity
- ✓ Minimum Pressure Drop: a few millimeters of water column
- ✓ Made from high Temperature and abrasion resistant steel
- ✓ Unpluggable !