Factsheet #2

Re-use energy from dryer vent gas

IP&D experts BV

Dd 09-06-2022

ref: 2021_085_IPD_RVO_spray dryer energy reductions

Re-use of energy from Dryer vent gas

Process description.

An "non-water soluble" compound is washed with hot water to remove impurities. After washing, the wet cake is dried in a Ring dryer, Flash dryer or Rotary Drum dryer. For environmental reasons a scrubber is placed in the vent gas from the dryer. This scrubber has a water circulation flow of 35 m3/hr. In the scrubber water: dust and Heat from the ventgas is absorbed. In this example both the dust and the heat from the ventgas is re-used. Also the heat from the filtrate from the beltfilter is re-used to heat-up the incoming air of the dryer. In this way Natural gas consumption is reduced from 417 to 282 m3/hr.
.

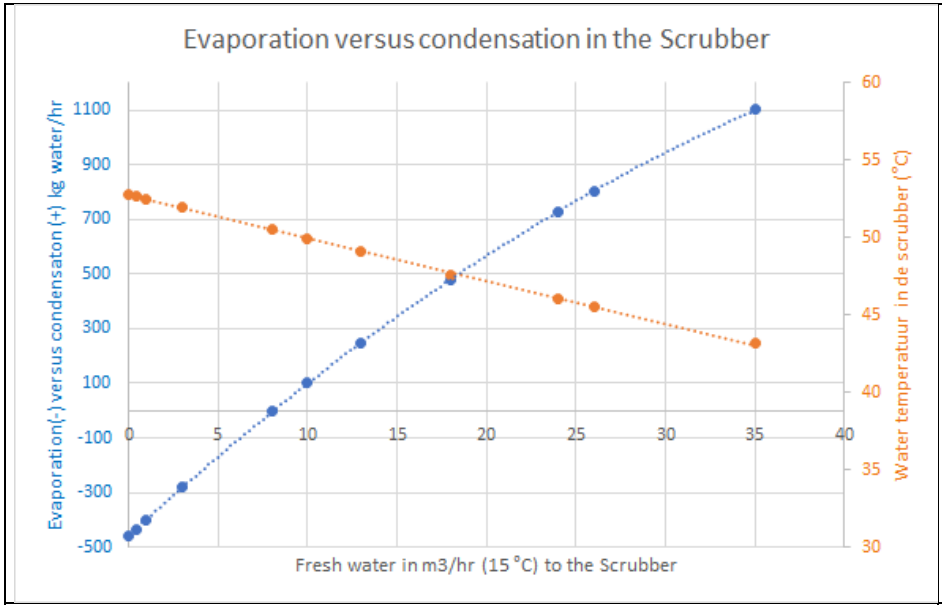
Natural Gas equivalent (104 m3/hr)

Old situation : gas consumption 313 + 104 = 417 m3/hr = 100 %

New situation: gas consumption 282 + 0 = 282 m3/hr = 68 %

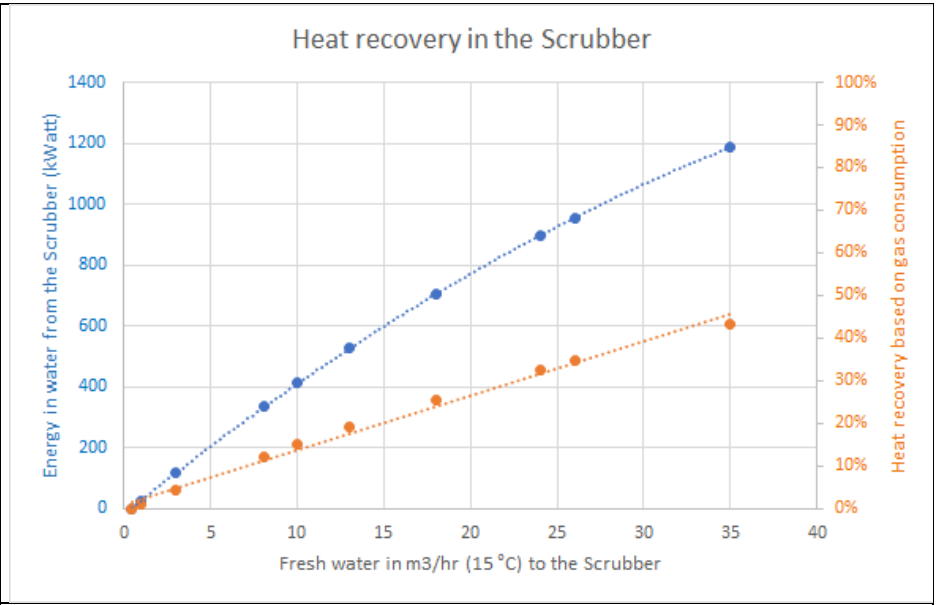
Name :	Re-use of heat from Ventgas Dryer
Date :	8 -june-2022
Option 1.	Present and future situation Ring Dryer
Afdeling :	IP&D/DH
Filenaam :	Natural gas reduction

IP&D experts



Graph 1. The effect of fresh water flow (m3/hr) to the scrubber:

- on scrubber water temperature (orange line) at 100 % relative humidity
- the amount of evaporation (negative value) or condensation (positive value) from the ventgas from the dryer (blue line)



Graph 2.The effect of the fresh water flow (m3/hr) to the scrubber:

- on the energy (kWatt) taken up by the water (blue line)
- recovery of heat (expressed in m3 gas/hour) in comparison with the amount of gas used for the drying