Case Study

Pharmaceutical gas scrubbing

Technology for a Sustainable Future

Application

Novartis Ringaskiddy Limited needed to scrub a variety of aggressive acid and volatile organic compounds from the vents of pharmaceutical batch reactors. These make up part of the manufacturing process of a range of pharmaceutical ingredients. The compounds included HCl and methyl bromide fumes within air or nitrogen streams.

System description

Hot off-gases from the pharmaceutical reactor are gas are fed tangentially into the V-tex® scrubber chamber, where they create a vortex. Simultaneously, caustic liquor is injected into the top of the V-tex® chamber via a patented "cobra" nozzle that creates a planar droplet spray. The action of the liquor droplets passing through the gaseous vortex generates intensive gas mixing allowing the caustic to react with and the acids in the offgas stream. The nscrubbed gases are then passed to the facility's existing stainless steel rich vent system, where the VOCs are treated or recovered.

The scrubber package is designed to remove >99% of a process release of 2kg HCl vented over 90 seconds using 10%NaOH solution. Alternatively it will remove methyl bromide when ethanolamine solution is used as the scrub liquor.

The equipment is compatible with a full range of process solvents and inorganic reagents and being skid mounted can be easily moved around the plant for use on different production lines.

Design gas flowrate	0 to 160 m^3/hr
Design pressure	4.0 barg
Design temperature	0 to 90°C
System pressure drop	<10 mbar

Equipment description

400mm dia V-tex® scrubber on 0.5m^3 sump tank
Fabricated in ECTFE lined GRP with Atlac 490 high temp. resin
Pump, pipework and valves PTFE/PFA lined carbon steel
Metallic wetted parts: Hastelloy C276

PED: Category IV, group 1, table 1, designed to BS4994
ATEX: Gas zone 0 (internally), dust group 22, gas group IIC, T4, equipment category 1GD

Year: 2008
Value: £100,000

ERG Air Pollution Control

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