

Tecnoimpianti

**EFFECTIVE DEODORISATION  
IN BIOLOGICAL PURIFIERS,  
WASTE TREATMENT AND  
HEAVY ODOUR APPLICATIONS.**



**AMDS**  
Advanced Multistage Deodorization System

'AMDS - Advanced Multistage Deodorisation System' is able to guarantee outstanding results in terms of odour and nuisance emission reduction.

Ideal in situations where there is a lack of space for biofilters, the AMDS system is an advanced evolution of traditional scrubbers, bringing abatement yields from 50-60% up to 90-95%.

Thanks to the experience and know-how acquired over time, **TECNOIMPIANTI** is a benchmark in the design and production of process fluid treatment equipment.

Wet scrubbers manufactured in the **TECNOIMPIANTI** workshops are made of thermoplastic materials (polypropylene, PPS, PVC), in both horizontal and vertical axis configurations.

'AMDS' is composed by multistage scrubbers with a sequence of separated washing solutions in countercurrent that leads the air treated to receive a final cleaning phase always with fresh cleaned water.

The contact surface is increased by using highly efficient filling bodies that facilitate contact between washing solution and the gas to be treated in countercurrent.

In horizontal-axis scrubbers, the liquid meets the gas perpendicular to its flow, in vertical-axis scrubbers the flushing is countercurrent.

For proper operation of the scrubbers, it is necessary to use chemicals as adsorption aids and to provide several superimposed washing stages.

The dosing of chemicals, suited to the nature of the process being used, is done automatically under the control of instrumentation with system management by PCS/DCS for solution discharge and process parameter control.

Our abatement towers are designed to treat odorous gases and vapours with flow rates from 2,000 m<sup>3</sup>/h to over 500,000 m<sup>3</sup>/h and ensure emissions in compliance with international standards and A.I.A. (integrated environmental authorisation) limits.

## 5-STAGE SCRUBBER FOR SLUDGE TREATMENT STATION

One of the most innovative plants we built, is the one installed in the Sewage Treatment Plant of the City of Monza, conceived to solve the problems related to the emissions and the odours coming from the sludge treatment line of the urban sewage treatment plant.

The plant consists of five washing and deodorisation stages built in two wet towers (scrubbers) operating in series for the abatement of the vapour transported by the mixture consisting of the gas streams from the sludge oxidation tanks, the primary sludge collection tanks, the anaerobic stabilisation digested sludge collection tanks, the mechanically thickened sludge tanks, and the post-combustion unit of the sludge thermal treatment unit.

The first abatement tower has 2 separate chemical washing stages, the second 3 (the first 2 like the first, plus a final neutral wash with water).

The Contact Time and the definition of the design parameters comply with the Lombardy Region guidelines.

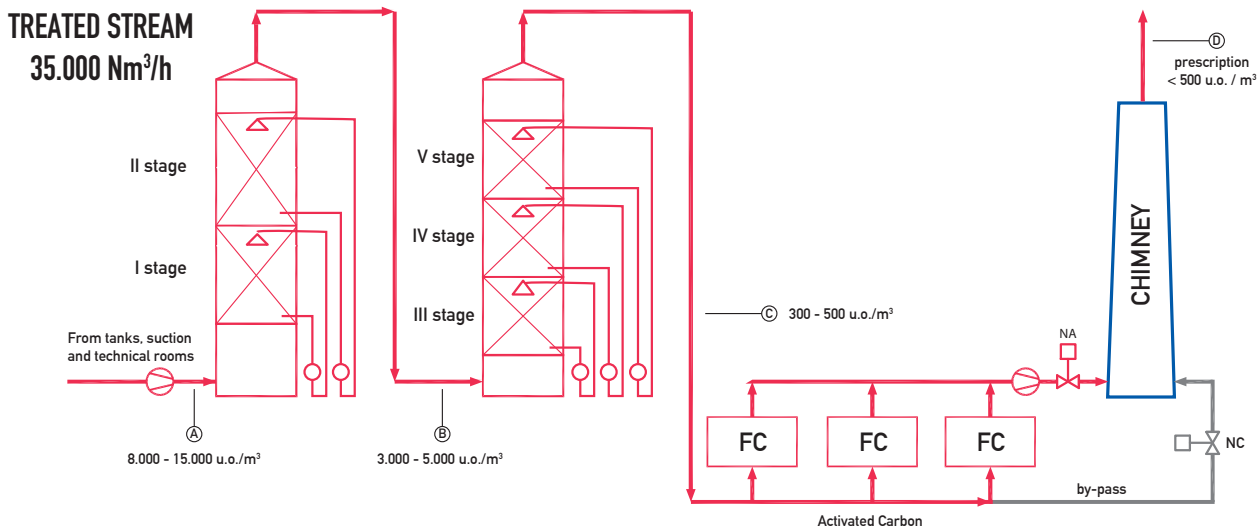
The washing stages mentioned have a filling consisting of random rings to facilitate better contact with the sucked aeriform.

The structure of these rings forms a dense layer of mesh on which the atomized washing liquid and the polluted air, in ascending motion, come into contact: at this moment the chemical reaction develops, resulting in the neutralisation of the substances present in the air.

After washing, in each of the two towers, the vapours pass through a droplet filter.

The fumes are then conveyed to the treatment unit with an activated carbon filtration system for safety.

The system thus constructed and automatically operated by DCS supervisor is able to reduce the odour from around 10,000 u.o./m<sup>3</sup> to a value of less than 500 u.o./m<sup>3</sup> after scrubber, thus solving what was a great inconvenience for the surrounding population.



SUBSTANCE	LIMIT	INPUT POINT	SCRUBBER OUTPUT	GAC CHIMNEY OUTPUT	TOTAL RETURN
H <sub>2</sub> S	1 mg/Nm <sup>3</sup>	< 40 mg/Nm <sup>3</sup>	< 0.5 mg/Nm <sup>3</sup>	< 0.1 mg/Nm <sup>3</sup>	99 %
Mercaptans	4 mg/Nm <sup>3</sup>	< 10 mg/Nm <sup>3</sup>	< 0.5 mg/Nm <sup>3</sup>	< 0.1 mg/Nm <sup>3</sup>	99 %
COV Nm	20 mg/Nm <sup>3</sup>	< 100 mg/Nm <sup>3</sup>	< 30 mg/Nm <sup>3</sup>	3.0 mg/Nm <sup>3</sup>	97 %
NH <sub>3</sub>	5 mg/Nm <sup>3</sup>	< 100 mg/Nm <sup>3</sup>	< 0.5 mg/Nm <sup>3</sup>	< 0.5 mg/Nm <sup>3</sup>	99 %
ODOURS	500 o.u./m <sup>3</sup>	< 10.000 o.u./m <sup>3</sup>	360 - 500 o.u./m <sup>3</sup>	< 300 o.u./m <sup>3</sup>	99 %