

Odors – How to treat them

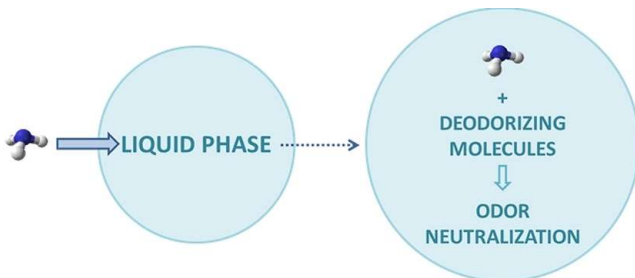
How is it possible to intervene to abate odorous molecules?
Discover it with us!

In a [previous article](#) we discussed the odorous molecules. In particular, we examined the definition of smell, its chemical nature and the methods used to analyze them. It is now our interest to answer other important questions: how is it possible to intervene to break down the odor molecules? What type of technologies do we have?

Let us examine the main solutions used, along with their application proposals. The first technology to analyze is that of deodorization.

Deodorization

Remember the phenomenon of absorption? We talked in the article on the [abatement of VOCs](#), treating in [wet scrubber](#). Let us review quickly this principle: if they are put in contact, a gas phase (containing a specific pollutant) and a liquid phase, the mixture pollutant tends to migrate in the liquid phase.



The amount of pollutant absorbed from the liquid phase and the absorption rate are respectively governed by thermodynamic and kinetic aspects, which in turn depend on the chemical-physical properties of the substances involved and on the experimental conditions in play.

Well, also the deodorization is based on the phenomenon of absorption. The molecules present in the gas phase migrate into the liquid phase and react with suitable deodorizing chemical compounds, which modify the chemical structure of odor molecules and will neutralize olfactory effects.

In order to make this happen efficiently, it is appropriate to create a large contact surface between gas and liquid, by means of a fine dispersion of droplets which come into contact with the entire gaseous phase.

On the basis of these considerations Tecnosida® has developed the [DEODORY](#) system.

The principle of DEODORY operation is very simple: the deodorizing solution is injected into the exhaust pipe under the form of a very fine aerosols, thanks to appropriate dosage units and in the double-dispersion nozzles. The wide contact surface between the gaseous phase and the

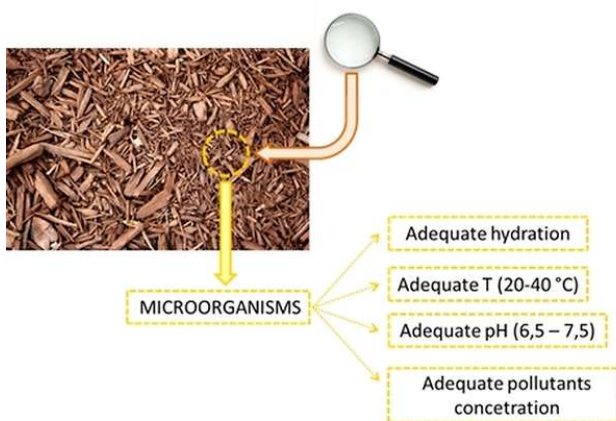
liquid phase allows the transfer of odorous molecules in the latter, with consequent removal from the gaseous phase and neutralization. A concept as simple as it is effective: [look how we have applied to a water treatment plant and sludge dewatering!](#)

The technique we have now analyzed is based on the absorption and odor neutralization. There is another method which allows to neutralize odors by chemical transformations: biofiltration.

Biofiltration

For us humans the odorous molecules are often annoying. You cannot say the same for some microorganisms, which are greedy and that cleverly fit into their metabolism. Biofiltration is based on this principle: the use of specific strains of microorganisms to metabolize the volatile compounds and odors.

Ok, the principle is simple. How can we develop it in practice? In practice, it makes necessary the presence of a substrate, on which the microorganisms can flourish. To this end, it is used the ligno-cellulosic material, ideal for the development of the microorganisms themselves if maintain in certain operating conditions. Among these we include:



- Proper hydration: the substrate moisture should be neither deficient (as a drying of the bed would decrease the activity) or too high (as it may result in anaerobic zone creation)
- The concentration of pollutants: since the odorous molecules serve as raw materials of the metabolic process, their concentration should be neither too low (otherwise there would be insufficient nourishment) nor too high (otherwise a certain percentage would not be torn down and escape to microorganisms)
- A certain range of temperature: the life of the microorganisms is favored if the temperature is between 20 and 40 ° C.
- The pH range: it is good that is between 6.5 and 7.5 for the reproduction of the microorganisms.

On the basis of these parameters Tecnosida® has developed BIOCLEAN, a modular [biofilter](#) suitable for various situations.

The odor reduction can also be made using other technologies that reduce [VOC](#). They are:

- [Activated carbon filter](#)
- [Wet Scrubber](#)
- [Thermal Oxidation](#)

[Read the article](#) where we talked about this equipment and chemical-physical principles that underlie it!

See you soon with new information!