

In plants that produce emissions of strongly smelly and / or polluting substances, it is possible to intervene successfully by proposing customized applications and specific products.

This type of technology is widely used in various fields, including:

- The abatement of foul-smelling, explosive and toxic organic vapors of hydrocarbon compounds of
- production plants, storage tanks, API separator and treatment plants
- The abatement of odors emitted in the treatment of municipal solid waste
- The abatement of odors emitted in waste water treatments

AVKEM TECHNOLOGY

AVKEM technology is based on two specific products:

- the treatment plant, consisting of:
 - HP dosing and pumping station
 - adduction and support lines for the spray nozzles
- Specific additive LECS N (Natural)



NANO NEBULIZATION

It is scientifically proven that the efficiency of odor treatments is conditioned by the size of the sprayed droplets, the smaller they are and the more efficient the system is, as it is able to capture the molecules of the VOC Volatile Organic Compounds.

Consequently, the higher the pressure, the smaller the drops (at 70 Bar they have dimensions from 10 µm to 30 µm). Pressures below 10 Bar generate drops between 100 and 200 µm depending on the nozzles used, making them unsuitable for capturing VOC.

The nano drops interact with the Volatile Organic Compounds, incorporating them easily and

neutralizing them thanks to the chelating agents present in the additive. They remain suspended and volatilize without creating drips or wetting of surfaces.

High pressure is the only system capable of generating initial jets (over 3/5 meters depending on the nozzles used) which with the subsequent diffusion form in a few minutes a very fine and dense fog with low consumption of water and therefore additive.



AUTOMATION SYSTEMS

The systems can be supplied in the ATEX version and with the automation system, consisting of a centralized system, Multi Point Detector MPD, which can be interfaced with the company operating system, in compliance with the Industry 4.0 directive.

In this case, the nebulization system will be controlled directly by the PLC interfaced with the air sampling sensors both through routine mode and when the thresholds set for the individual detection sensors are exceeded.

LECS N

It is a multifunctional product consisting of a mixture of natural products such as surfactants, chelating agents and food emulsifiers, in aqueous solution. It is formulated with a broad spectrum action, specifically chemical-physical, for the abatement of emissions of Volatile Organic Compounds in general, of H₂S and of mercaptans in particular, and is in any case able to act on most odorous substances and break down explosiveness.

Dosage

For the high pressure odor treatment, LECS N is dosed between 0.1% and 1%.

For other treatments, such as reducing explosiveness, the dosage to be used is between 3% and 6%.

LECS PORTABLE DOSING SYSTEMS

High Pressure

Specific quadrigetto nozzles are used, applied as terminals in the canal jets of self-purgers, or mobile systems with wheeled high-pressure pumps, electrically operated or with internal combustion engines, guaranteeing a range of 15-19 meters at 60 bar (Photo left)



Rain systems can be used for crude oil tanks with sunken floating roofs, to prevent emissions and reduce both explosiveness and odors.

Low Pressure

In the figure on the right is a 50 liter portable nebulizer loaded for 2/3 with the mixture of water / LECS N, and, compressed air or Nitrogen at 8 bar. Easily transportable to the area to be treated.

REPORT

Below are the olfactometric analyzes performed on Virgin Naphta tanks by a certified laboratory commissioned by the Client.

As highlighted, thanks to the treatment, odors were eliminated up to 95.

	without nebulization			
	S 175			
Samplin time	16,35	16,40	16,45	14,2
height from shell	2m valle	1m valle	2m monte	1m monte
sampler number	5299-017	5299-018	5299-019	5299-020
OU³/m³	450	740	715	1000
uncertainty	320-635	525-1040	510-1005	1000-1000
percentual reduction of odor emission				
Temp °C	20,2	20,2	21,4	21,4
Umid Rel %	65,20	65,20	58,20	58,20
Speed m/s	3,00	3,00	3,00	3,00
T Store hour	25,6	21,70	21,80	21,80

