

ECOSORB[®] "TURBOFAN" ELIMINATES WASTE ODOR WITH HIGH PRESSURE



„To minimize odour nuisance for local residents a method was needed to eliminate odours directly at the source of formation. “

At one of the largest landfills of eastern Austria large quantities of household waste had to be loaded and disposed by incinerating. Already at the beginning of the operation it turned out that the odour nuisance for the population was too heavy and this resulted in massive neighbour complaints.

The wind mostly blowing from west to north-west drove odours to an eastern settlement. A solution had to be found to remove the household waste without creating significant odour problems.

ACAT recommended a procedure to eliminate odours directly at the source by atomizing Ecosorb[™].

Mechanism of Ecosorb[™] action:

Ecosorb[™] is a blend of natural essential oils and emulsifiers, it is non-toxic and biodegradable.

Highly diluted Ecosorb[™] (1:10 - 1:2000) is sprayed directly over the odour source. Once the odour molecules come into contact with

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the finest water droplets, they are adsorbed into the droplet and they are no longer perceived to be bad smelling.

Previously it was believed that essential oils are only masking agents and they are not able to neutralize odours. However, tests showed that some essential oils have the ability to eliminate a number of unpleasant odours. For example, wintergreen oil neutralizes tobacco odours and juniper oil eliminates the odours of rancid butter and milk fats.

Not only the type of oil (juniper, wintergreen, etc.), but also the cultivation area of the plants used for oil extraction plays an important role. Similar oils necessarily do not have the same chemical composition. For example, the tea tree oil *melaleuca alternifolia* is found on three continents. The therapeutic effects needed for the manufacture of pharmaceutical preparations is found only in Australia. The same applies to many essential oils used for odour control.

The mechanism of how essential oils work is very complex. But basically they "work" by using ionic bonds. The oils are mixed with water and sprayed as fine droplets into the air. The mixture decomposes and the odour molecules can penetrate into the essential oil droplets.



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The tiny water droplets have a thin oil skin creating electrostatic charge. The charge facilitates the adsorption of the malodorous molecules onto the droplet surface. Although the water drops exist only for a few moments the malodour molecules are captured and neutralized.

First, several tests were carried out at the landfill with two turbofans with a theoretical throwing range of up to 30 meters. Finally it was decided to treat the area with a turbofan and a high pressure system with 100 nozzles.

This treatment made it possible to load about 13,000 tons of household waste. The close cooperation with the local residents could eliminate quickly temporarily accumulating odour problems. Such problems sometimes occurred at low wind speeds. Also a short-term increase of dosage up to 7 l / h helped to avoid odour nuisance.

During the treatment period the average daily dose was about 25 kilograms per day or 0.100 kg Ecosorb[™] per ton loaded household waste. As the treatment was successful the spraying systems were purchased. They continue to be used in order to prevent any arising odour problems in time.

Technical data turbofan

Power about 2 kW/16A
13 nozzles
Water consumption about 2l/min
Water used shall be of potable quality
Additional filters are installed

Technical data HD system

High pressure pump:
Triplex plunger pump with 3 ceramic plungers
Delivery volume:
min 25l / h to max 400l / h
Operating pressure: 60 to 80 bar
Max water temperature: 40 ° C
Voltage: 3 ~ 400V/50HZ
Power consumption: 3 kW/10A

Standard equipment

24V safety low voltage, operating hours counter
Frequency controlled pump drive with 2.2 kW motor power
pumps with flow rates of 25 l / h to 400l / h at 60-80 bar pump pressure.
Large-sized water supply tank, special high-pressure pump with variable drive that can operate without problems within the wide frequency range.
Display of frequency in Hz via an outside mounted display.
Safety valve set to 85 bar.
The flow monitor outside the safety valve displays when spray nozzles are clogged and less than about 0.2 l liquid / min is transported through the nozzles.
The display is a visual display.
The drive of the engine and the high pressure pump is via an elastic coupling with clutch housing.
The pump unit is mounted on vibration dampers and therefore smooth operation is ensured
Complete system including frame and panelling is made of stainless steel