

# *Fantastic*



**ODOR CONTROL PRODUCTS**



## AN OUTLOOK THE CONCEPT OF FOUL ODOR:



Odor is the manipulation of receptors in our nose, by the reactive gaseous molecules present in the air.

“Foul odor or unpleasant odor” is a phrase used to describe the kind of odor which is smelled at a place or situation where that odor is not granted. The reaction of human beings to a foul odor range from a simple irritation to severe sickness and vomiting

### **When is an odor classified as foul odor:**

Sensation of any odor as foul is a psychosocial matter. The same odor can be perceived as a pleasant odor, or a foul only depending on the case it is smelled. Some remarkable examples on this argument can be explained as follows:

**Foot smell :** Many people explain the smell of some kinds of cheese to be, smelling as foot. Surely the smell of foot standing in a plastic or sports shoe all day long is accepted to be unpleasant. However the smell of a piece of camembert or brie cheese can be found to be very pleasant by the people who are fond of this cheese. The remarkable truth is that it is the same agent that causes the cheese smell and the foot smell.

**Fish :** Rotten fish generates a disgusting odor. In spite of this many tourists are fond of the far eastern rancid fish sauces. Besides ancient Romans frequently used similar sauces in their dishes

**Garlic :** Odors of onion, garlic and etc. are found to be appetizing for anyone who is about to start a meal. However after a long meal when a person is full the same odors are easily taken as unbearable.



## CLASSIFICATION OF FOUL ODORS :

Every part of an odor molecule does not stimulate the odor receptors in the nose. Usually a limited part of the molecule stimulates the receptors and send an odor signal to the brain. Referring to the active material in it we can classify the foul odors to three types.

**Fatty acids** : Sourish odors, sweat odors, olive oil processing industries odors and etc can be named in this class. Generally the source of this kind of an odor is rancidity, various fermentations, sweat and etc. Because the odors in this class cause relatively smaller troubles compared to the other odor problems and are more easily competed, they do not cause serious problems.

**Sulfur compounds** : These odors are generally formed of organic sulfite and mercaptans. They are commonly caused by sources like anaerobic reactions, rotten zucchini and decay of dead bodies.

**Nitrogen compounds** : These odors are generally caused by amines. Practically they are generated from rotten fish, dead bodies, urine and etc. sources.

Besides the above classification of odors, in some rare cases the nitrogen in the reactive part of some of the odor molecules is replaced by phosphore and the sulfur is replaced by selenium. In such cases the odor is even stronger and irresistible.

If we look at the case of odors from the theoretic side, the table below can describe if which chemicals cause which odor.

	NAME OF THE MOLECULE	SMELL
Sulfur Compounds	Methyl Sulphide	rotten zucchini
	Methyl disulphide	onion
	Butyl mercaptan	polecat
	NAME OF THE MOLECULE	SMELL
Nitrogen Compounds	Trimethylamine	rotten fish
	Indole	feces
	Tetramethylene diamine	rotten meat

In practice a foul odor is not formed by only one of these agents. But usually it is a case of a composition of many of these agents. For example in many cases an odor includes sulfur and nitrogen molecules at the same time.





## FANTASTIC ODOR CONTROL METHOD:



Neutralization of foul odors by Fantastic Odor Control is the combination of several different actions. For an effective odor neutralization a combination of below effects, depending on the class and source of the odor is used.

**Neutralization** : The active mater in Fantastic Odor Control initially targets the odor molecule. The special molecular structure of Fantastic Odor Control locks the foul odor molecule and blocks its structure capable of stimulating the receptors in the nose.

**Balancing** : The fragrances of different Fantastic Odor Control formulas are chosen for their opposing characteristic to the targeted foul odor by that formula. These fragrances act like a jammer for the foul odor and in a meaning confuse the message send to the receptors in nose by the foul odor. This makes a polishing effect by preventing the perception of the foul odor.

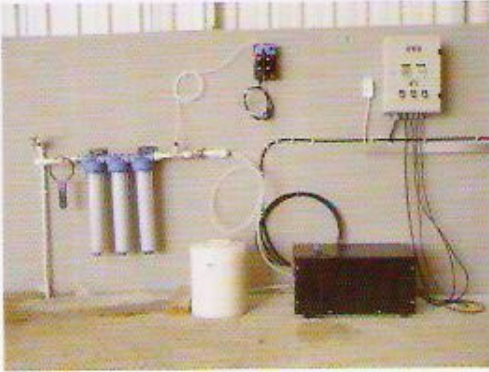
**Settling** : When Fantastic Odor Control is applied by misting systems, the mist created captures the foul odor molecules and slowly settles down. With this effect very similar to the effect of rain in the atmosphere, air is washed by a solution of Fantastic Odor Control and water.

**Breakdown** : Enzymes bacterial and other components in the formula of certain types of Fantastic Odor Control formulas completely break down the foul odor molecule.

As the result of the combination of these three actions specially combined for the type and source of the odor problem the foul odors are degraded below the perceptible level for human being.



## APPLICATION METHODS



There are different ways that Fantastic Odor Control products are applied. The method of application usually depends on the source of the odor.

It is possible to apply Fantastic Odor Control by manual or automatic methods. When using simple hand pumps or sprayers a solution of 1-5 % is applied whereas a solution of 0,01 - 0,1 % can be applied in automatic misting methods.

For automatic applications we suggest the high pressure misting systems that suit best with Fantastic Odor Control products by means of forming a perfect mist and providing an excellent homogenous dispersion of the product.

In spite of this Fantastic Odor Control products can well be used compatibly with all kinds of lower pressure sprayers and perfume dosing systems on the market.





## FIELDS APPLIED



Deodorization of waste water treatment plants, sludge thickening basins, sludge dewatering units, transportation storage and dehydration processes of dewatered sludge and similar units and processes.



Deodorization of Urban solid wastes transporting, processing plants, solid waste storage areas, composting plants, urban solid waste transportation trucks, wash water of these trucks, leak water of urban solid wastes.



Degradation of odors generating from urban sewer systems, lift stations, open air sewers and etc.



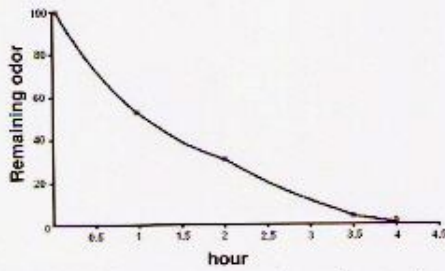
Deodorization of exhaust gases from kitchens and other food processing plants.

Deodorization of foul odors in domestic applications, like hotel rooms, smoking areas, garbage rooms, kitchen and shower drains and etc.



## CASE STUDIES

### ODOR CONTROL VS. CAT URINE



### Direct and indirect application on solid odor

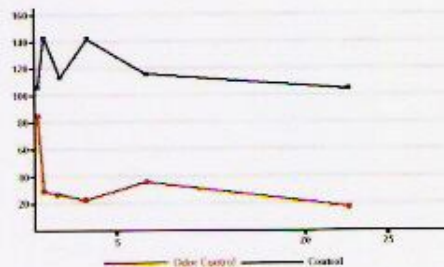
**sources :** In a field test made to observe the effect of pulverization of Fantastic Odor Control on solid odor sources putrid cat urine (3-mercaptan, 3-methyl butanol) was used. Fantastic Odor Control diluted in water to application dosage was directly and homogenously pulverized on the source of the odor.

Graph 1 shows the replies of people attending the experiment. This field test demonstrates how a dose of Fantastic Odor Control works on odor sources and eliminates all the odor in a certain time.

Similar results are achieved in a different test where Fantastic Odor Control versus the moisture smell in hotel rooms. In this field test 5 % solution of Fantastic Odor Control was pulverized manually in the rooms once a day.

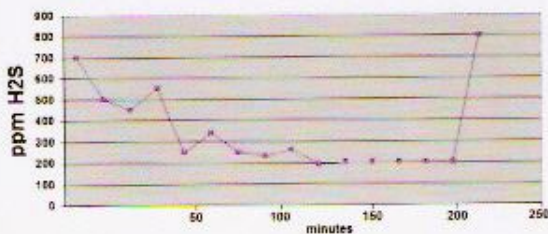
In this field test where the rooms suffered from a smell of moisture generating from an undefined source the results proved that 5 % solution of Fantastic Odor Control can eliminate the odors throughout 24 to 48 hours.

**Activity on amines in gaseous form :** In this test where the effect of Fantastic Odor Control was tested on amines a certain amount of cyclohexylamine was dosed in a closed drum. After waiting for a while for cyclohexylamine to get homogenous in the medium, a dose of Fantastic Odor Control was pulverized in the drum. Graph 2 shows the measured



cyclohexylamine concentrations in the application and control drums.

### EVOLUTION OF H<sub>2</sub>S IN GAS PHASE



### Activity on hydrogen sulfur (H<sub>2</sub>S) gas:

At a field test on H<sub>2</sub>S gas, which is the main reason of foul odor problems at waste water treatment plants, an amount of active sludge was placed in a closed container. After waiting some time for the anaerobic fermentation to start 0,1 % solution of Fantastic Odor Control was periodically pulverized in the tank.

As it is seen in graph 3 application of Fantastic Odor control degrades the H<sub>2</sub>S concentration to 200 ppm from its initial level of 700 ppm. After stopping the application the increasing concentration of H<sub>2</sub>S to 800 ppm level proves the strong activity of the product on H<sub>2</sub>S degradation.



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