

# ODOR COUNTERACTANT

## 655

### A Natural Solution to Odor Control

Safe and effective odor neutralization products are based on fermentation technology. Controlled processing of natural vegetable components yields naturally pleasant odor control agents, effective in a wide range of significant odor applications.

#### Modes of Action:

Two principle modes of action explain the effectiveness of **Odor Counteractant 655**:

1. This product contains the **enzymes hydrolase, de-esterase, reductase, and oxidase**, which provide **bioconversion of odor molecules**. Higher molecular weight malodors, esters, aldehydes, and alcohols are **oxidized**, and amines and mercaptans are **neutralized** through this mode.

As nature's catalysts, small amounts of enzymes promote extensive amounts of reaction. In the presence of an oxidizing source such as oxygen, enzymes rapidly increase the conversion to oxidized materials. Enzymatically promoted oxidation of compounds, such as with the malodorous amines and mercaptans demonstrates the effective qualities of our odor control products. The organic acidic nature of these products result naturally and swiftly in amine neutralization to odorless ammonium salts.

2. Natural deodorants also contain substances that interact with and counteract molecular actions through **Van der Waal forces** and **hydrogen bonding**. These physical/chemical actions **increase the effective molecular weight of malodors, reducing the odor level**. This physical type of action mostly occurs with sulfur compounds, such as low molecular weight mercaptans, hydrogen sulfide, sulfur dioxide, and other thio compounds.

<b>Malodor Name</b>	<b>Primary Odor Control Action</b>	<b>Reaction By-product</b>	<b>Rate</b>
Acetaldehyde	Ox	Acetate Salts	Rapid
Allyl Mercaptan	HB, Ox	Allyl Sulfonate Salts	Rapid
Ammonia	Nt	Ammonium Salts	Rapid
Amyl Mercaptan	VW, HB	Amyl Sulfonate Salts	Slower
Benzyl Mercaptan	HB, VW	Benzoate Salts`	Slow
Butylamine	HB, Nt	Butyl Ammonium Salts	Rapid
Cadaverine	HB, Nt	Cadaverinium Salts	Rapid
Chlorphenol	HB	Pyruvate and Succinate Salts	Slow
Crotyl Mercaptan	VW, HB	Crotyl Sulfonate Salts	Rapid
Dibutylamine	HB, Nt	Dibutyl Ammonium Salts	Rapid
Diisopropylamine	HB, Nt	Diisopropyl Ammonium Salts	Rapid
Dimethylamine	HB, Nt	Dimethyl Ammonium Salts	Rapid
Dimethyl Sulfide	Ox	DMSO	Rapid
Diphenyl Sulfide	Ox	Phenyl Sulfonate Salts	Slow
Ethylamine	HB, Nt	Ethyl Ammonium Salts	Rapid
Ethyl Mercaptan	HB	Ethyl Alcohol, Sulfate Salts	Rapid
Hydrogen Sulfide	Ox	Sulfate Salts	Rapid
Indole	Nt	Indolinium Salts	Slower
Methylamine	HB, Nt	Methyl Ammonium Salts	Rapid
Methyl Mercaptan	HB	Methyl Alcohol, Salts	Rapid
Ozone	Rd	Active Agent	Rapid
Propyl Mercaptan	VW, HB	Propyl Alcohol, Sulfate Salts	Rapid
Putrescine	HB, Nt	Ammonium Salts of Putrescine	Rapid
Pyridine	HB, Nt	Pyridinium Salts	Rapid
Skatole	Nt	Ammonium Salts of Skatole	Rapid
Sulfur Dioxide	Ox, Nt	Sulfate Salts	Rapid
Tert-Butyl Mercaptan	HB	Very Stable	Slow
Thiocresol	HB	Pyruvate and Succinate Salts	Moderate
Thiophenol	HB	Pyruvate and Succinate Salts	Slow
Triethylamine	HB, Nt	Triethyl Ammonium Salts	Rapid

<b>Control Action Key:</b>	VW	Van der Waals Forces
	HB	Hydrogen Bonding
	Ox	Oxidation
	Rd	Reduction
	Nt	Neutralization
	St	Substitution

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