

# Odor Assessor's Recommendation for Precise Solutions

## Request for Odor Solution

### 1 Occurrence of Foul Odors

If there is an occurrence of foul odors and are unsure of the cause or how to treat it, please contact one of our staff members.

### 2 Sampling

One of our knowledgeable staff members will visit you and listen to your concerns. If possible, we will take some odor samples and bring it back to our Technical Department for analysis.



### 3 Analysis / Assessment

#### Odor Analysis

- Odor Composition
- Odor Strength

Once the sample is brought back, the Technical Department will analyze, assess the strength of the odor and conduct conformity tests with our extensive line up of deodorizing agents (Air Server®) to find the one that is the most suitable.



### 4 System Installation Proposal

- Selection of Equipment
- Selection of Deodorizing Agent
- Quotation

First, how the deodorizing agent will react with the odor will be taken into consideration. The conditions of the premises and wind direction will be evaluated to determine the method of spraying and the system needed for installation.



If possible, a simple test may be conducted to see how effective the deodorizing agent is. Customers will also be able to sense and confirm the effects for themselves for easier understanding. Please feel free to contact us should you have any questions.



We will be able to provide you with a quotation on what type of system is needed based on our evaluation of the premises.

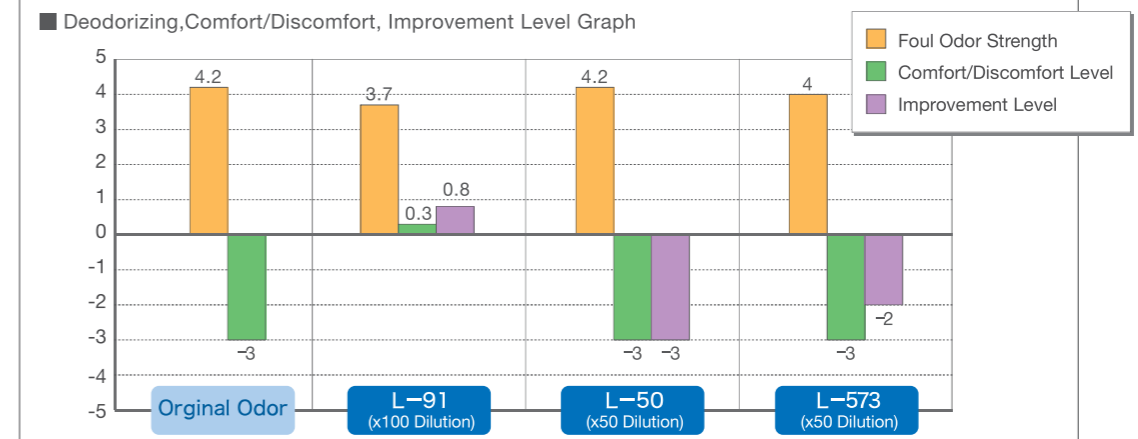
As the maker of deodorizing agents with many years of experience, we are confident we are able to provide you with the best solution for your needs.

### 5 Installation

We provide our customers with the following report and proposal of our products.

#### Conformity Tests based on Sensory Tests (Location A)

Deodorizing Agent Name	6 Levels of Odor Intensity			Avg.	9 Levels of Pleasantness/Unpleasantness			Avg.	9 Levels of Improvements			Avg.
Original Odor	4.5	4	4	4.2	-3	-3	-3	-3	—	—	—	—
L-91 (x100 Dilution)	4	3	4	3.7	1	-1	1	0.3	1.5	-1	2	0.8
L-50 (x50 Dilution)	4.5	4	4	4.2	-3	-3	-3	-3	-2	-4	-3	-3
L-573 (x50 Dilution)	4	4	4	4	-3	-3	-3	-3	-1	-3	-2	-2



#### 6 Levels of Odor Intensity

Odor Intensity	Level of Odors
0	No odor
1	Can perceive an odor (Detection Threshold Concentration)
2	Can detect an odor or weak odor (Cognitive threshold concentration)
3	Can easily perceive an odor
4	Strong odor
5	Extremely strong odor

Odor intensity is a measure of the strength of odor, and in the Odor Control Act the odor intensity method based on the 6 levels of odor intensity indication method is a basic measurement. Value of the physical property density with the odor intensity range of 2.5 to 3.5 are the ones we respond to.

#### 9 Levels of Pleasantness/Unpleasantness

Pleasantness/Unpleasantness	Levels
+4	Extremely pleasant
+3	Very pleasant
+2	Pleasant
+1	Somewhat pleasant
0	Neither pleasant or unpleasant
-1	Somewhat unpleasant
-2	Unpleasant
-3	Very unpleasant
-4	Extremely unpleasant

The 9 Levels of Pleasantness/Unpleasantness Indication Method is a scaling method which is often used in the conformity test of foul odors and deodorizing agents and quantifies foul odors.

#### 9 Levels of Improvements

The 9 Levels of Improvement is an original scaling method by Omi Odor Air Service.

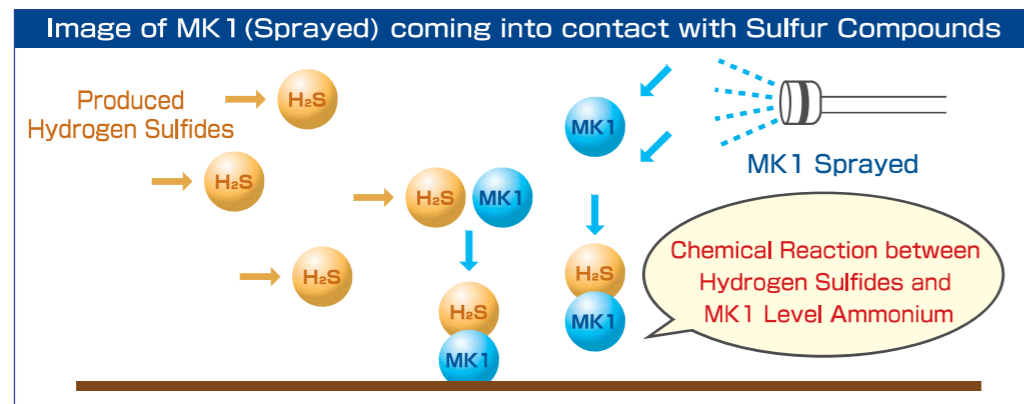
Improvement	Levels
4	Improved Extremely: Only the scent of the deodorizing agent can be sensed.
3	Improved Greatly: Mostly the scent of the deodorizing agent can be sensed.
2	Improved Considerably: The scent of the deodorizing agent is far stronger than the foul odor.
1	Improved Somewhat: The scent of the deodorizing agent is somewhat stronger than the foul odor.
0	Improved: The foul odor is weak, but the scent of the deodorizing agent is not strong either.
-1	Improved Slightly: The foul odor is weak, but stronger than the scent of the deodorizing agent.
-2	Some changes to the properties have occurred, but the foul odor is still strong.
-3	Not much has improved.
-4	No improvement at all.

# エアサーバ AIR-SERVER® Line-Up

## Spray Type

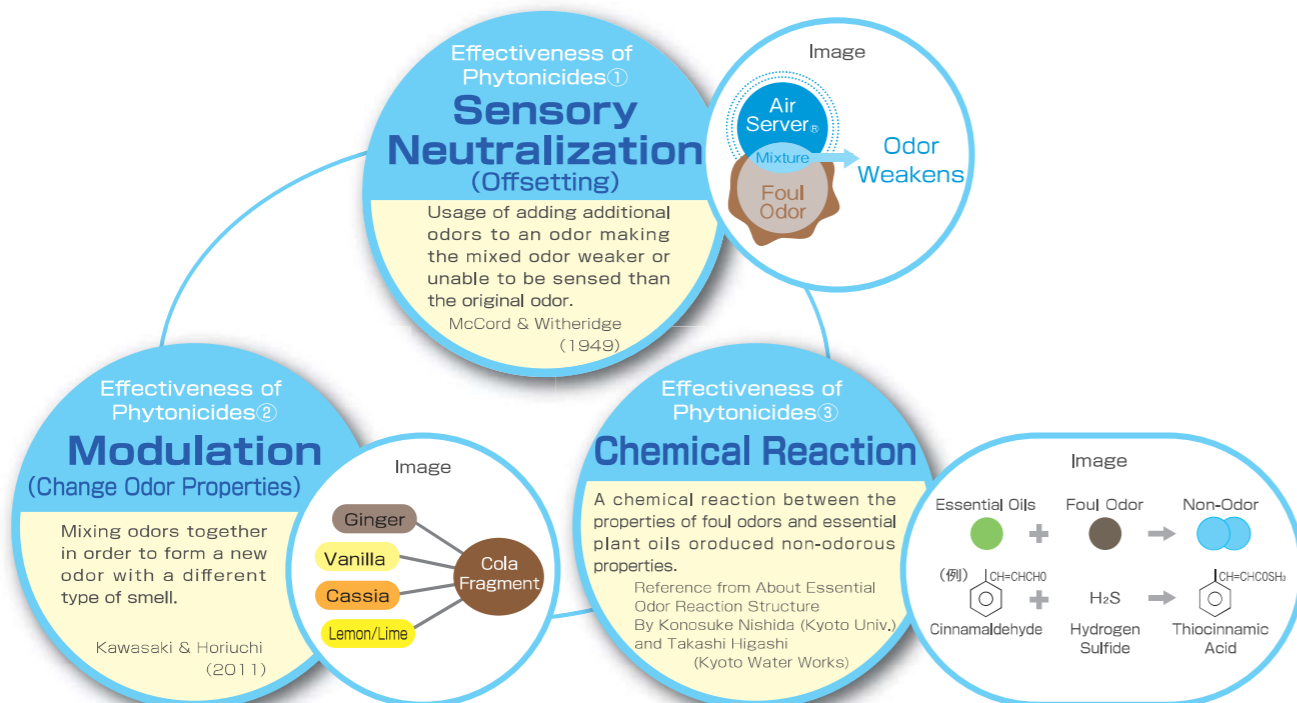
### 1 Reaction Type (L-MK Series)

- ◆ Contact with foul odor producing properties (Ammonium, Sulfur Compounds, Aldehyde atmosphere causing a direct reaction decreasing foul odors.)
- ◆ Direct reaction with the foul odor producing properties allows improving foul odor.
- ◆ Effective product in removing specific foul odor producing characteristics.



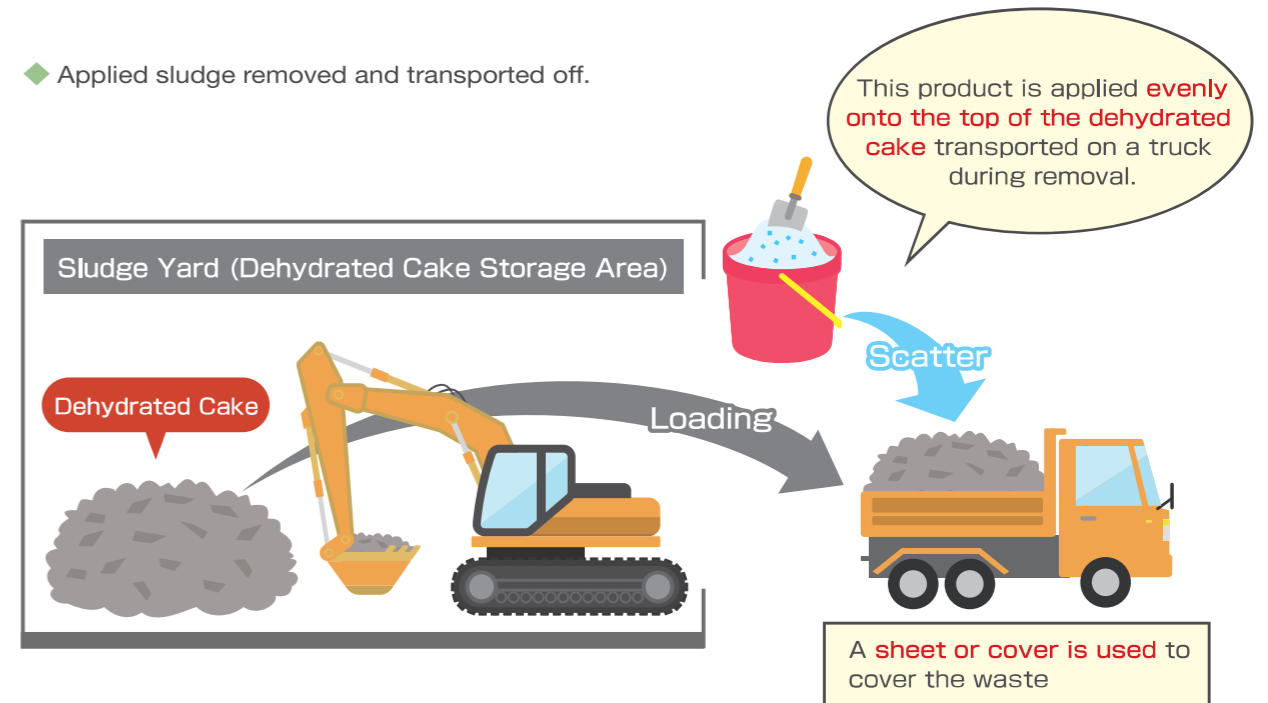
### 2 Sensory Neutralization Type (L-Series)

- ◆ Deodorizing Agent made mainly of Phytoncide from plants. Sensory neutralization, modulation, chemical reaction will have deodorant effects on foul odors.
- ◆ By adding moderately pleasant aroma, effects such as reduction of odor intensity, change of malignancy, and reduction of discomfort can be achieved.
- ◆ Made from essential plant oils and surfactants with low biodegradability for low accumulation to the environment and with safety to the human body and the environment consider as a priority.



## Powder Type

- ◆ Applied sludge removed and transported off.



PRODUCT NAME	Granule88L
APPLICATION	Transporting of sludge
PACKAGING	5kg/bag×4

#### Feature

This product, with natural minerals of mordenite-type zeolites, with an added fragrance is best for dehydrated cakes. It can improve the unpleasant odor coming from the dehydrated cakes during transportation.

**[Caution When Using]** Please read the SDS and Specification Sheet when using.

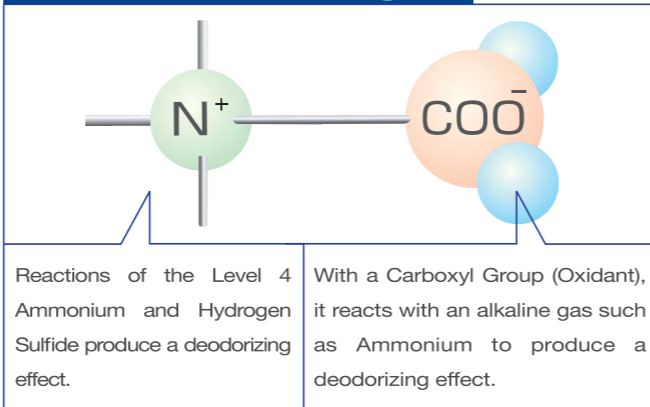
# Spray Type (Reaction Type)

## Air Server L-MK Series

Air Server L-MK series deodorizing agents can reduce malodorous substances through direct contact by chemical reaction. It is particularly effective on hydrogen sulfides, ammonia, and aldehydes.

Within the molecule of the raw materials used in the Air Server L-MK Series, Level 4 Ammonium and a Carboxyl Group are used. This molecular structure can reduce Ammonia and Hydrogen Sulfides.

### Molecular Structure Diagram



## Air Server MK-1

Deodorizing Agent incorporating Polyphenols used as a deodorizing ingredient. Offensive odors typified by nitrogen compounds and sulfur compounds are a gas with a low boiling point and low molecular weight, diffusing thoroughly into the atmosphere. Among the ingredients extracted from plants against these odors, chemical reaction such as neutralization, addition, substitution, reduction and such can occur by complex polyhydric phenols (polyphenols), while inclusion, adsorption, and such are its physical reactions. By these actions, it removes the odor components diffused into the atmosphere and exerts a deodorizing effect.

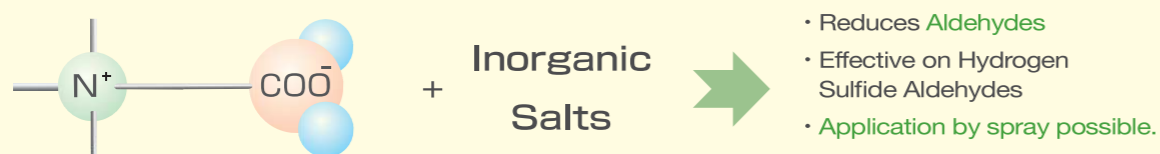
### Structure (Image)



## Air Server MK-2

Deodorizing Agent incorporating Inorganic Salts in its deodorizing ingredients. This agent is specifically developed for reducing aldehydes for spraying in duct. Aldehydes are difficult to dissolve in water, and regarded as a component that is difficult to remove safely by using chemicals. Through years of research, this agent was developed to solve such problems and can reliably remove aldehydes through direct contact by spraying into the duct.

### Structure (Image)

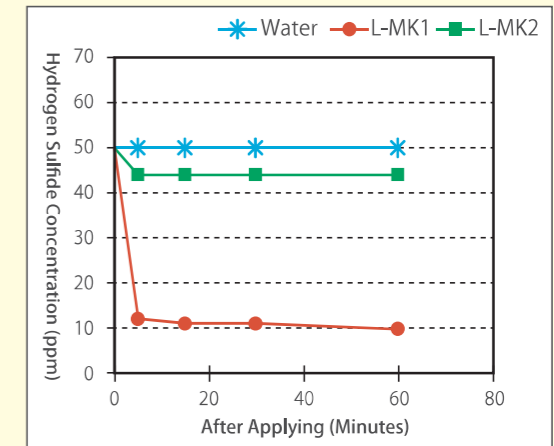


## L-MK Series Effectiveness in reduction of Malodorous substances

### Effectiveness on Hydrogen Sulfides

In a comparison test of with Water and L-MK2, L-MK1 had the greatest effect on reducing Hydrogen Sulfides when used. It is also confirmed that effects are immediate.

Product	Hydrogen Sulfide Concentration (ppm)				
	Before	After Applying (Minutes)			
	0	5	15	30	60
Water	50	50	50	50	50
L-MK1	50	12	11	11	10
L-MK2	50	44	44	44	44

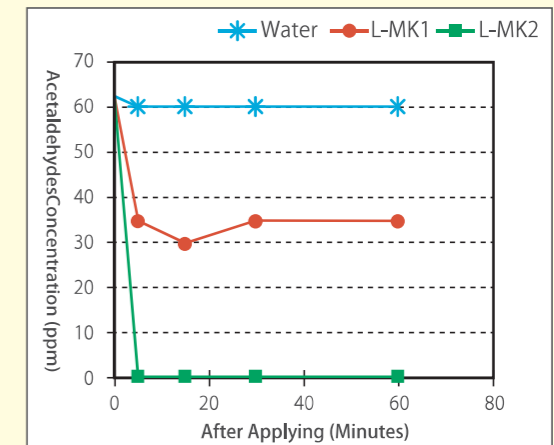


★ L-MK1 is most effective in areas where mainly Hydrogen Sulfides are produced.

### Effectiveness on Acetaldehydes

In a comparison test of with Water and L-MK1, L-MK2 had the greatest effect on reducing Acetaldehydes. It is also confirmed that effects are immediate.

Product	Acetaldehydes Concentration (ppm)				
	Before	After Applying (Minutes)			
	0	5	15	30	60
Water	62	60	60	60	60
L-MK1	62	35	30	35	35
L-MK2	62	N.D.	N.D.	N.D.	N.D.



※N.D. (Not Detected) indicates values lower than the value limit from the tube detection measurement.

★ L-MK2 is most effective in areas where mainly Acetaldehydes are produced.

※The numbers presented in this data are verification results from tube detection measurements conducted internally and not considered a guaranteed value.

### [Packaging, Container]

L-MK1 : 20KG Cube Container, 200KG Drum Can  
L-MK2 : Please inquire the volume needed to confirm packaging.

### [Caution When Using]

L-MK1, L-MK2 : Please read the SDS and Specification Sheet when using.  
L-MK2 : Please do not use in an area where people will inhale chemicals

# Spray Type (Sensory Neutralization Type)

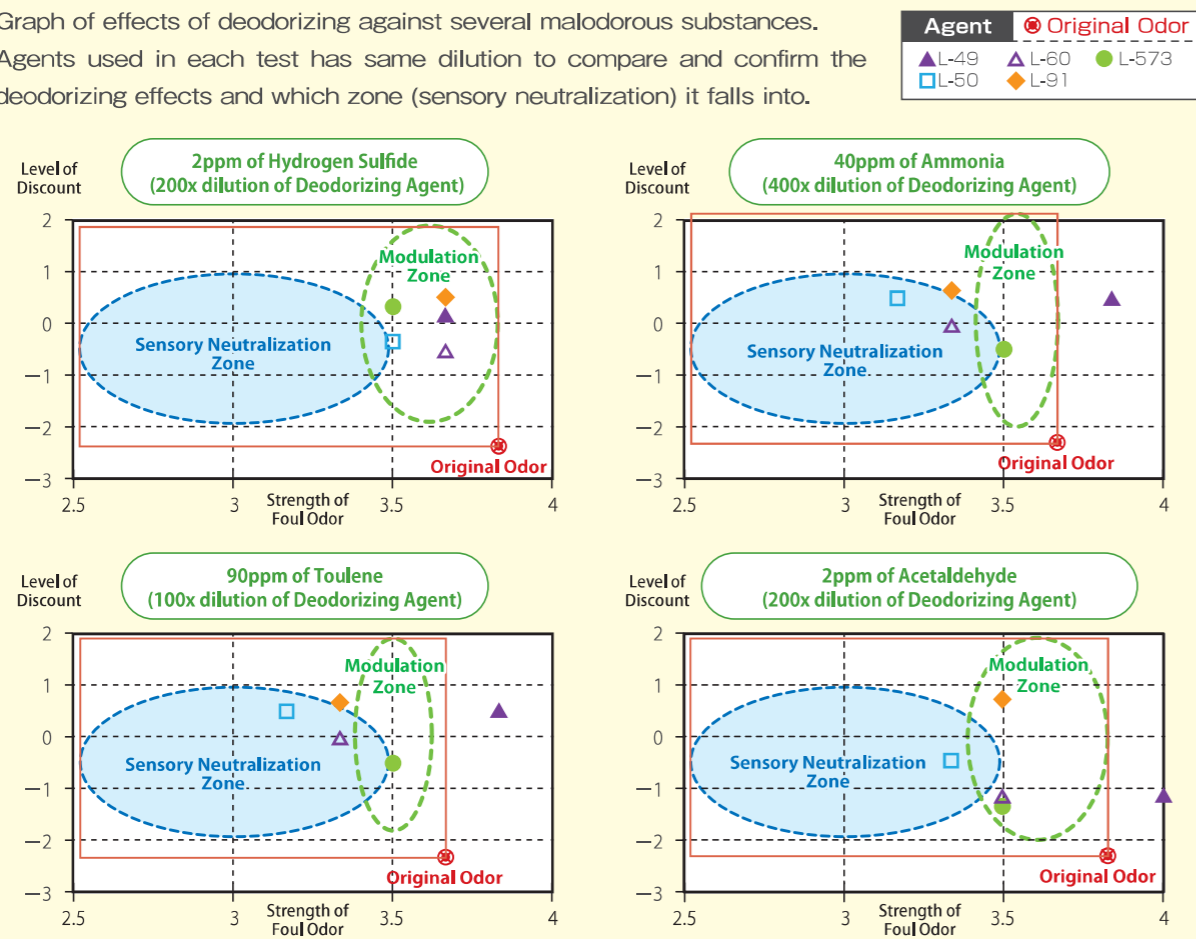
## Air Server L Series

### Environmentally Friendly Deodorizer

- The main ingredient (phytoncide component) is environmentally friendly made from essential oils from plants which can be sprayed as a fine mist. This increases the efficiency of contact with foul odors with increase range, producing sensory neutralization / modulation effects and lowering costs.

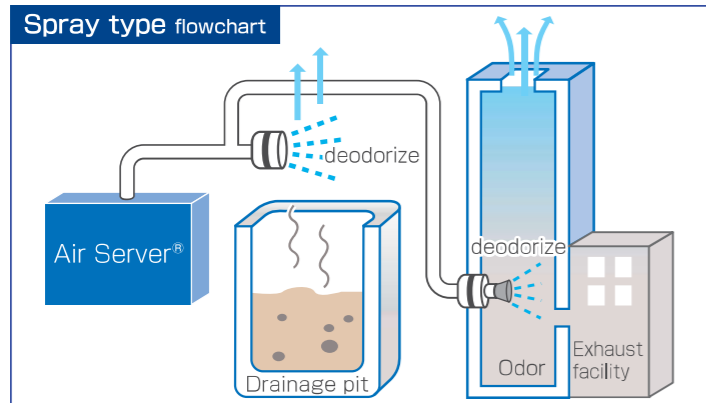
### Usage of Air Server L-Series Against Malodorous Substances

Graph of effects of deodorizing against several malodorous substances. Agents used in each test has same dilution to compare and confirm the deodorizing effects and which zone (sensory neutralization) it falls into.



Each pattern shows that Level of Discomfort and Foul Odor has been reduced.

### Spray type flowchart



### Recommended Deodorizing Agents for Main Causes of Malodorous Substances (For Reference)

Agent Name	L-49	L-50	L-60	L-573	L-91	Main Causes of Foul Odors
Characteristics	Strawberry	Apricot	Cool and Soothing	Citrus Fruit	Body Soap	
Chicken/Pig Farm	●		●	●		Ammonia • Amine • Sulfur Compounds • Low Fatty Acids
Sewage Treatment Plant	●	●	●	●	●	Ammonia • Amine • Sulfur Compounds
Printing Factory	●				●	Ammonia • Amine • Sulfur Compounds • Aldehydes • Solvents
Oil Factory			●	●		Ammonia • Amine • Sulfur Compounds • Aldehydes
Fertilizer Factory		●			●	Ammonia • Amine • Sulfur Compounds • Low Fatty Acids
Food Factory				●	●	Ammonia • Amine • Sulfur Compounds
Pulp Factory	●	●	●			Sulfur Compounds • Low Fatty Acids • Solvents
Fish Factory		●	●			Ammonia • Amine • Sulfur Compounds • Aldehydes • Low Fatty Acids
Urine Treatment Factory		●				Sulfur Compounds • Low Fatty Acids
Waste Disposal	●		●		●	Ammonia • Amine • Sulfur Compounds • Low Fatty Acids
Rubber Factory	●				●	Ammonia • Amine • Sulfur Compounds • Aldehydes • Low Fatty Acids
Fish Food Factory	●	●	●			Ammonia • Amine • Sulfur Compounds
Steel Factory	●	●	●	●	●	Sulfur Compounds • Aldehydes
Chemical Factory		●	●			Aldehydes • Solvents
Paint Factory	●		●		●	Aldehydes • Solvents
Foundry Factory		●	●	●		Ammonia • Amine • Solvents
Waste Treatment Factory	●		●	●		Ammonia • Amine • Sulfur Compounds • Low Fatty Acids
Chemical Plant	●		●		●	Low Fatty Acids
Waste Water Treatment Plant	●		●	●		Ammonia • Amine • Sulfur Compounds
Cuting Factory		●		●	●	Low Fatty Acids

[Packaging, Container] 18kg Can, 200kg Drum Can

[Caution When Using] Please read the SDS and Specification Sheet when using.

### Characteristics of Fragrances

Air-Server L-49 Strawberry	Air-Server L-50 Apricot	Air-Server L-60 Cool and Soothing
Air-Server L-573 Citrus Fruit	Air-Server L-91 Body Soap	

※ Depending on your sense of smell, products with different fragrances are also available.