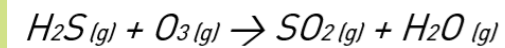
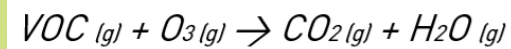


Unic Care Ozone Treatment

The Unic Care Ozone is ozone treatment solution for air treatment. The applications range is very broad, spacing from highly efficient removal of H2S in industrial plants to odour removal in commercial ventilation. The system includes high-performance ozone generation, together with features such as specialized oxygen plant for maximum efficiency, safety systems and high quality material tubing & piping. The Unic Care Ozone is a platform with exceptional modularity, adapting the ozone capacity to meet the customer's needs and requirements. Therefore, we offer tailor made of the Unic Care Ozone solution, depending on customers need.

Single-stage ozone solution – Unic Care Ozone

In many cases, a single-stage ozone solution already has a great reduction of the odour emissions, Since ozone is a powerful oxidation media, it quickly reacts with the odourous molecules. These molecules are efficiently oxidized, leading to the formation of carbon dioxide and water, completely odourless and harmless compounds. This oxidation mechanism is valid both for odours from organic compounds, such as VOCs, and from sulfur compounds, such as H2S, as showed below.



The only difference is the formation of sulfur dioxide (SO2) instead of carbon dioxide (CO2) when H2S is removed. However, the final result in terms of odour removal is the same, since the odour threshold of SO2 is 1000 higher than the one of H2S. This means that the odour from SO2 is not significant compared to the one from H2S.

Application Areas:

- Odorous industrial process exhaust ventilation

Overall benefits of the Unic Care Ozone solution:

- Highly efficient ozone generation reduces energy consumption and footprint
- Stable and reliable ozone production over time:
- High quality fed-gas used (concentrated, dried oxygen from oxygen generator)
- Pure ozone output. No by-products such as NOx, no nitric acid (HNO3) nor salt formation; extending longevity of system
- Efficient heat management (liquid cooling) for stable and reliable operation, also extending longevity of system
- Minimized maintenance due to clever design; pure, dry oxygen fed-gas and liquid cooling
- Teflon-hose ozone distribution
- Rugged design for harsh environments.
- Modular design, flexible combinations



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INDUSTRIAL AIR & ODOUR TREATMENT SYSTEM



Save Tree | Save Water | Save Earth



Website : www.uniccare.com

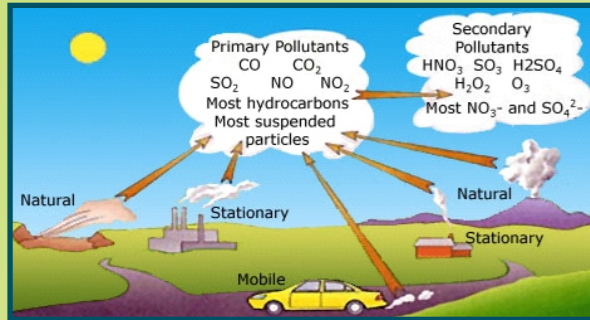


Unic Care Technologies™

Complete Water & Environmental Solutions

What is Air Pollution ?

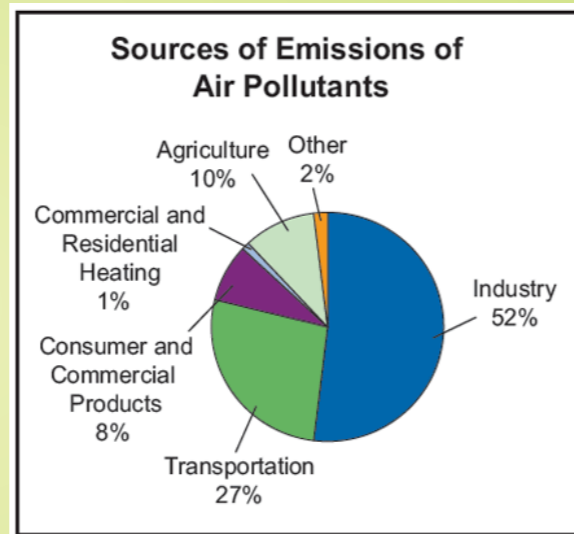
Air pollution is the contamination of the natural air by mixing it with different pollutants such as harmful fumes and chemicals. This contamination can be caused by gases emitted by vehicles or from burning material or harmful fumes emitted as a by product of industries. The higher the concentration of air pollutants, the harder it to remove it effectively through natural cycles. The higher concentrations also result in breathing problems for living things. Some effects include increase in smog, higher rain acidity, crop depletion from inadequate oxygen, and higher rates of asthma. According to experts, global warming is one of the biggest side effects of air pollution.



Main causes of air pollution.

1. Emissions From Industrial Plants and Manufacturing Activities
2. Combustion From Fossil Fuels
3. Farming Chemicals and Household Products
4. Natural Causes of Air Pollution
5. Other Causes

Sources of Emissions of Air Pollutants



Industrial Emission Air compounds concentration

- H₂S
- Volatile Organic Compounds - VOC
- SO_x
- NH₃
- Mercaptans
- Methane
- NO_x

Process conditions

- Humidity
- Temperature
- Flow rate
- Pressure and pressure drops

INDUSTRIAL ODOUR

The widest ranges of odours consist of organic compounds although some inorganic substances, such as hydrogen sulphide and ammonia, are also odourants. The general principle of odour nuisance policy is aimed at reducing odour emissions as much as possible, using Best Available Technique (BAT) for odour control.

In India, there are many different industries and business, which have mostly odour emission process. These composition and concentration of emission odour are different in each type of business. Mechanism of odour generation can be roughly divided into two groups, one is caused by Raw Material that is malodorous and another is caused from the Manufacturing Process (heating, drying, fermentation and burning) in which odourous compounds are produced. For countermeasure of odour pollution, odour characteristics of target gas should be investigated. like containing odourant, exhaust gas volume, gas temperature, time and frequency of odour emission and etc. have to be made clear by odour survey.

Examples of odorous compounds and character

Compound	Character
Methyl mercaptan	Decayed cabbage, garlic
H ₂ S	Rotten egg
Acetaldehyde	Fruity
Hexyl acetate	Fruity green apple or banana sweet
Formaldehyde	Acrid, suffocating
Toluene	Sweet, pungent



Characteristics of odour emission in the various odour sources

Classification of main odour emission sources
Table 1 Classification of various odour emission sources by the scale of odour emission (OER)

Scale of Odour Emission	Name of Business (Odour Emission Sources)	OER (m ³ /min)	Distance of Influence (m)
Large	Fish Meal Plant & Animal Feed Mill	10 ⁷ ~ 10 ⁹	1,000 ~ 5,000

Air Pollution controls

Odour Control from Point Source:

In case of point sources such as that of Industries, the odour causing gas stream can be collected through piping and ventilation system and made available for treatment.

Ozone Treatment:

Ozone treatment for oxidation of odiferous gases has been acknowledged as a technically effective method for many years. Ozone is one of the strongest oxidants known and quickly breaks down odour compounds. Ozone is classified as an "oxidant" or a substance that converts organic material into their base compounds. Ozone can be put to use to convert air borne pollutants such as ammonia, mercaptans, sulfides and other organic chemicals into inert, non-odorous by products. As well, it is a very effective disinfecting agent and will kill germs, viruses, bacteria, molds and yeasts. Ozone is an extremely fast-acting oxidant. It is these unique characteristics that allow Ozone to be put to use in control environmental pollution in the field of Animal Feed mills and Fish meal. After oxidizing substances, the target substances are broken down into their base components, Ozone then simply reverts to Oxygen.

Animal & Shrimp Feed Mill



Table 2 Classification of odour emission sources by the mechanism of odour generation

Group	Process	Handled Subject	Name of Business (Odour Emission Sources)
II	Heat Treatment & Cooking	Fish Meal & Animal Feed	Fish Meal Plant & Animal Feed Mill

Table 3 Classification of odour emission sources by mainly contained odourants

Compound	Main Odourants	Name of Business (Odour Emission Sources)
Nitrogen containing Compounds	Ammonia Amine	Fish Meal Plant & Animal Feed Mill
Organic	VOC	

