

## ODOUR CONTROL WITH ECOSORB

Applied Chemicals International group (ACAT) is the official partner of OMI in Europe for industrial applications.

OMI is the world leader in plant oil odour control technology and it has more than 30 years of experience in this field. Its products are safe, natural and effective. ACAT produces and distributes Ecosorb for OMI, a product with high efficiency and effectiveness in controlling a wide range of different odours. With our innovative equipment, we are able to treat and eliminate odours produced by wastewater treatment plants, waste transfer stations, landfills, compost facilities, food processors, steel mills, foundries, chemical plants, paper mills, petroleum refineries, fiberglass fabricators, remediation sites, tank cleaning applications, and many others.

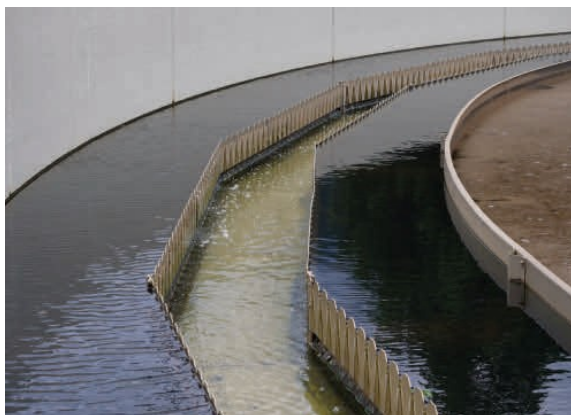
The odour of waste water is one of the most complex problems to be dealt with, as it often affects the surrounding area. Neighbours are quickly prepared to create a scandal and express their dissatisfaction, in the countryside as well as in cities. Ignoring the problem only makes it worse, because if once the attention of the media is attracted, reporting on proven or suspected violations of the law, it often can lead to lawsuits.

To prevent such undesirable effects from becoming reality, OMI has developed Ecosorb, a



natural solution for controlling odours. The air odour neutralizer Ecosorb is a new environmentally- friendly alternative to existing odour control systems. It consists of a proprietary blend of plant oils, food-grade emulsifiers and water that is non-toxic to humans.

In USA OMI collects air samples of odorous gasses on site and sends the samples to their Research and Development Center to be analysed. The Gas Chromatography Mass Spectrometry is used to detect volatile and semi-volatile compounds and the Gas Chromatography Flame-Induced Ionisation is used to detect sulphur-containing compounds. A team of Ecosorb scientists carries out on-site measurements with various devices like Nasal Ranger and Scentroid: anything greater than 7 odour units is considered a nuisance odour.



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ACAT is taking into consideration to use both the Nasal Ranger and the Scentroid also in Europe to ensure accurate analyses and research.

### About Ecosorb

Ecosorb products are leading in the natural, safe, effective and complete elimination of unpleasant industrial odours.

Ecosorb has two main product lines:

- An oil-based line: plant oils + plant based diluent
- A water-based line: plant oils + water + surfactant

The Ecosorb odour control products do not mask the odour, but eliminate it permanently by degrading and neutralizing the odour molecules. They are non-toxic, plant-based products and therefore safe for humans and environment. Ecosorb products are a blend of natural plant oil extracts, food grade emulsifiers and water, they are effective, safe to use, biodegradable and harmless to the environment. Ecosorb products are USDA approved and all ingredients are non-toxic according to the guidelines of the Canadian DSL, the European EINECS, the Australian AICS and the United States TSCA.

### How Ecosorb works

Usually, in airborne applications of Ecosorb products the atomized or vaporized material is carried into the atmosphere, where it attracts or it is attracted to everything in the atmosphere: a pleasant odour, a malodour or particles.



Research has shown that by using Ecosorb products several mechanisms are involved in the odour neutralization process. Which are the most important ones?

#### Contacting Van Der Waals interaction

- Electrostatic charge

#### Adsorption binding of molecules to a surface

- The larger the surface area, the better the adsorption;
- After absorption, the odour molecules are degraded or salts are formed. Ecosorb acid reactions take place with base molecules.

#### Absorption molecules enter the bulk phase

- the molecules are absorbed by the mass and not by the surface
- Odour under control
- Caused by the solubility of the Molecules.

#### Solubility the ability of molecules to dissolve in water

- Ecosorb products enhance the solubility of many gases;
- "The efficiency in odour elimination is proportional to the solubility of the odour" – Dr. Wilkinson

## An overview of the delivery systems

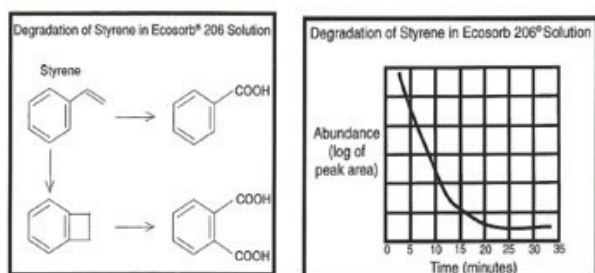
The effectiveness of the odour neutralization depends on the effective application of Ecosorb into the malodour containing atmosphere.

Our application technologies are crucial and they include: vaporization, atomization, additives, maintenance hole gel inserts, and spray gel.

- HPS (high pressure system): provides good atomization through a patented nozzle design and needs water to work.
- VPS (vapour phase system): produces sub-micron droplets and is dispersed as a dry spray. In this case, the droplets are smaller than in the HPS system. As a consequence, a bigger surface area is available and the droplets attract and absorb significantly more malodour. An additional advantage is that no water is needed.
- Additive: direct injection of Ecosorb into asphalt, resins, elastomers and other slurries.
- Gel inserts for maintenance holes
- Spray gel

## An important topic – Odour control of styrene

The use of styrene is constantly increasing as industry finds new and innovative applications for this compound. Unfortunately, styrene is considered to be highly reactive in the atmosphere and may contribute to smog formation and the production of secondary air pollutants. It is a volatile organic compound (VOC)



and is listed as a hazardous air pollutant (HAP). In high concentrations styrene odours are unpleasant and dangerous. OMI has developed Ecosorb 206 to specifically control styrene odours. They are not masked, but neutralized and thus completely eliminated. Ecosorb 206 improves the solubility of styrene so that the styrene molecules in the air can be dissolved in the atomized, diluted Ecosorb.

## Latest development – Cannabis Odours and Plant-Based Odour Removers

Recently OMI has developed a new line for the odour control of cannabis, using natural plant oils to destroy the cannabis odour. The blend of plant oils attracts the odour molecules and adsorption and absorption reactions neutralise their unpleasant odours.



There is a saying in chemistry: „The same dissolves the same“. A more common version of this is “fighting fire with fire”. Well, that is exactly what natural odour removers do: they use plant oils to neutralize plant odours.