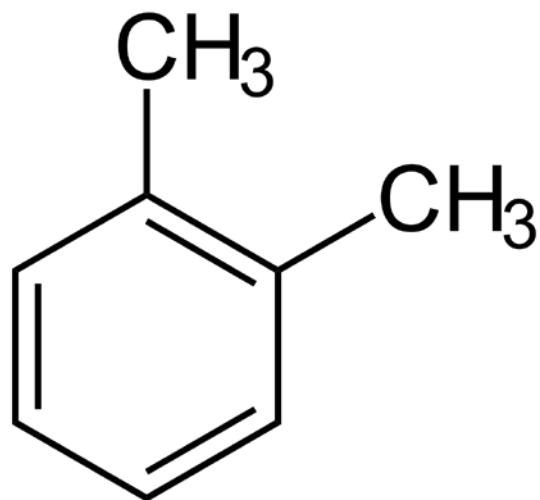
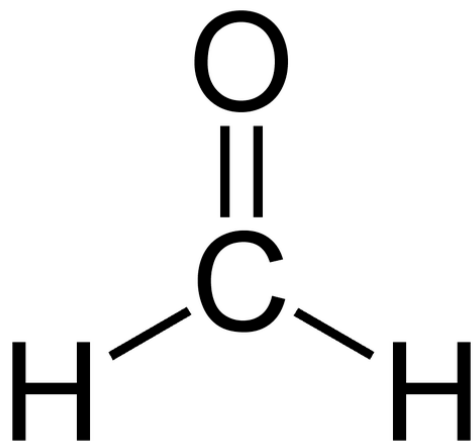


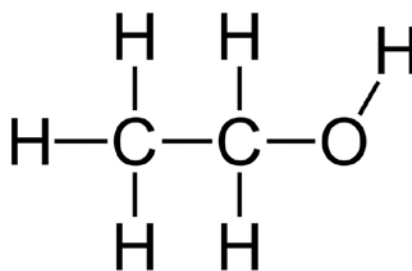
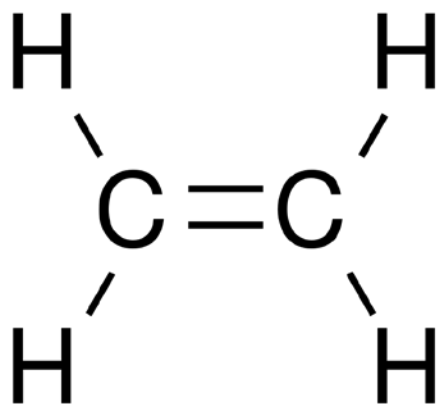
BIOKKER®

VOCs

biosintel



VOCs

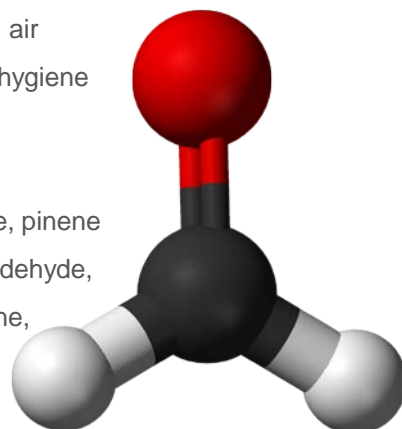


Volatile Organic Compounds

We define an organic compound as a chemical substance that contains carbon and that is part of every living element. A volatile organic compound or VOC, as the name indicates, easily transforms into gas and evaporates rapidly into the atmosphere.

There are many sources or processes that emit VOCs, especially in urban areas and areas of industrial activity, for example by burning or combustion of crude oils, fuels, natural gas, wood or coal, but ordinary products for domestic use or other elements employed in the workplace also emit VOCs, such as resins, paints, solvents, lacquers, carpets and rugs, plastics, rubbers, varnishes, air fresheners, several sprays, cleaning and disinfecting products, personal hygiene products and cosmetics, tobacco smoke, etc.

Some volatile organic compounds of natural origin are ethylene, methane, pinene or isoprene, while artificial ones include a greater amount such as formaldehyde, toluene, benzene, xylene, nitrobenzene, chlorobenzene, tetrachlorethylene, acetone, etc. There are thousands of compounds that can be considered VOCs, but the most numerous are ethane, methane, propane, n-butane, n-pentane, benzene, toluene, xylene and of course ethylene.



Many of these VOCs, besides generating bad odours, are dangerous air pollutants, and due to their great chemical reactivity act as "good" ozone destructors in addition to reacting with sunlight and other pollutants present in the atmosphere, plus some are also volatile, liposoluble, toxic and flammable, so they have adverse effects on people's health and on the environment such as the famous greenhouse effect or climate change.

Their volatile characteristic bestows serious health risks, being inhalation the most dangerous route of contamination. The toxicity depends on each compound and the degree of exposure to it. Mild exposure can cause allergic reactions, asthma, nausea, vomiting or dizziness, headache, mucous and skin irritation, swelling, airways discomfort, abdominal pain and fatigue, while on longer exposure can lead to neurological damage and various mental and behavior disorders such as irritability, lack of memory, difficulty concentrating, disturbed sleep, damage to the central nervous system, liver or kidneys; in extreme cases they can cause death.

Currently it has been proven that there are also compounds that can be carcinogenic, such as benzene and more recently **formaldehyde**.

Modification of Formaldehyde classification (CAS: 50-00-0)

At the 6th ATP (Adaptation to Technical Progress), Regulation (EU) No. 605/2014 hereby amends, for the purposes of inclusion of hazard and precautionary statements and its adaptation to technical and scientific progress, Regulation (EC) N. 1272/2008 of the European Parliament and the Council for classification, labeling and packaging of substances and mixtures, it has changed the classification of **formaldehyde** until now having been classified as carcinogenic category 2 with the hazard statement of H351 (it is suspected that causes cancer), to **carcinogen category 1B** with the hazard statement of **H350 (may cause cancer)**. It has also been classified as **mutagen category 2** with the hazard statement of **H341 (Suspected of causing genetic defects)**.

It is of vital importance to avoid exposing people in indoor environments to these health harming compounds; however, there is a difficulty, they cannot be eliminated through traditional filters.

Several systems are used for the elimination of these VOCs, one of them is activated carbon filters with different concentrations of potassium permanganate. These filters are positioned in the air conditioning and ventilation systems, but they are not capable of eliminating COVs completely, apart from the fact that the filters must be changed every so often depending on their absorption power due to their easy saturation point.

Also, depending on the installation, a pressure gradient can be established between the inside and outside so that the pressure inside is greater and through the opening of doors the air only comes out, supposedly preventing the entry of external compounds, besides from establishing a recirculation system for the clean air; however it is proven to be an insufficient, unreliable, minimally functional, expensive and a very high maintenance method.



COVS AND ODOURS ELIMINATION SYSTEM BLOKKER

Biokker eliminates volatile organic compounds while reducing the triggers that cause allergies and asthma, increasing the air quality, eradicating odours and consequently the disease. Our technology guarantees the constant purification of the indoor air of any environment, without the emission of ozone or harmful by-products.

Biokker removes xylene and formaldehyde by means of photocatalytic oxidation, providing a cleaner air and a safe environment free of contaminants.

Advantages of the BLOKKER system

- BLOKKER is energy EFFICIENT, with low consumption although it works continuously 24 hours/day, every day; it allows a programmable schedule use based on the client's needs; it reduces the number of air changes needed to create the optimum indoor environment
- It provides high quality indoor air by reducing the contamination by VOCs, odours and airborne pathogenic environmental particles, without size discrimination
- It is NOT a FILTER, it is an eliminating device, so it does not require hazardous or unsanitary cleaning, nor changes of filters or filtering membranes
- It does not emit sub-products
- It does not emit OZONE
- It prevents cross-contamination considerably as well as the symptoms in humans due to allergens, asthma and respiratory tract diseases in general, thus reducing working absenteeism
- It is innovative, both in its technology and in its design
- Very low maintenance. The catalyst is inexhaustible and the UV lamps, ozone free, are very easily changed only once a year
- Very simple installation without the need for special ducts or works, "plug & play" technology
- It does not interfere with the ventilation systems or other existing purifying technologies
- It is much more affordable than other technologies of the competition
- It is a product made in Spain

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