



ACTIVATED AIR UNITS

High-rate chemical oxidations systems for variable-source odour control

By means of a high-voltage applied to an ultra-violet light generating, catalytic wire mesh, molecules in ambient air are split and energised, converting the moisture and air into a flow consisting of a mixture of unstable atoms, ions and radicals, with elevated electron activity levels. These *Activated Air* molecules may then be injected into a gas carrying target compounds. The result is the high-rate oxidation of odorous molecules.

With this relatively simple but extremely potent technology residual odours may be completely eliminated from the offgas of a wide range of processes. The activated air molecules will attack all oxidisable compounds, reducing them to carbon dioxide, water, nitrogen and other such innocuous substances. The reactions involved are irreversible.



KEY FEATURES

HIGHLY EFFICIENT ODOUR CONTROL BY MEANS OF THE HIGH-RATE OXIDATION OF TARGET SUBSTANCES

COMPACT, PACKAGED UNITS

NO MOVING PARTS AND NO MECHANICAL WEAR

NO CHEMICAL ADDITIONS REQUIRED

NO WATER CONSUMPTION

NO WASTE PRODUCTS

LOW ENERGY REQUIREMENTS

MINIMAL MAINTENANCE REQUIREMENTS

CE



SPECIFICATION DATA

Flow rates available:

2,000 to 20,000 cubic metres per hour of exhaust gas flow. Larger flows may be accommodated with multiple modules

Materials of construction:

Stainless steel and high-resistance plastic composites

Energy requirements:

0.5 kWhr per 1,000 cubic metres

Chemicals required:

No chemicals are required

Waste products:

There are no waste products

Pre-treatment requirements:

No pre-treatment is required

Space requirements:

The largest standard module occupies a space of 1.5 m wide x 1.0 metre deep x 2.4 metres high. Front access is required for access to controls and for servicing

Maintenance:

Quarterly service visits are recommended. Catalysts should be checked for performance every year.

Operator skills:

No specific skills are required. A one hour training course is adequate for most people.

TECHNOLOGY

Deodorisation with an *Activated Air* unit is based upon high-speed oxidation. Molecules oxidised by this method cannot be detected by the human nose.

An *Activated Air* unit consists of a stainless steel cabinet containing wide-mesh UV-catalysts. Ambient air is passed through the unit, from atmosphere without any pre-treatment, and radiated.

In the high-voltage environment of the catalysts, the oxygen and water-vapour molecules are dissociated. This chemical conversion is the first step in a process that leads to the formation of an extremely reactive gas, comprising a mixture of unstable oxygen-atoms, ions, and radicals having elevated electron energy levels.

After it is injected into polluted air, this gas, referred to as '*Activated Air*', possesses the capacity to execute the high-speed oxidation of odour components.

As a result of mixing *Activated Air* and odour molecules, in the correct proportions, treated exhaust air will lose its capacity to excite a person's sense of smell. This principle may also be employed to the removal of unwanted trace gases from process streams.

PERFORMANCE

With all specific gaseous streams to be treated, it is necessary to carry out calibration trials to determine the rating of a unit to obtain the required treatment objectives.

Such treatment trials will typically consist of the following stages:

- Review process and exhaust air make-up
- Assess chemical composition of exhaust air, if possible, at an analytical level. Where the odour source is comprised of varying substances this should be identified and quantified
- Determine theoretical oxidation requirement to size pilot trials
- Run site trials with portable pilot plant unit
- Determine efficiency of oxidation against flow rate and compound loading
- Size full-scale treatment unit

Activated Air units may be supplied as stand-alone packages or as part of a complete system for the collection and treatment of odorous gases or gases containing oxidisable components.

For further information about how your process stream or exhaust gases may be treated please contact our Technical Sales Department.



Organics Limited

The Barclay Centre
University of Warwick Science Park
Coventry CV4 7EZ,
United Kingdom
T: +44 (0)2476 692141
F: +44 (0)2476 692238
E: comms@organics.com
W: www.organics.com

