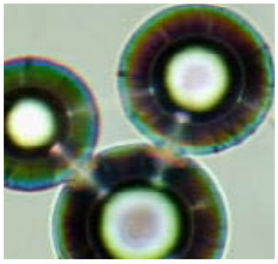
micro sphere technology

PHOTOSPHERES®

Titanium dioxide coated hollow microspheres

Making photocatalytic water treatment a more achievable goal.



Key Benefits

- Easily filtered
- Reusable
- Large surface area
- Buoyant
- Robust

Developed as a tool for the water treatment industry, PHOTOSPHERES are titanium dioxide coated hollow microspheres. They are a low density composite material, buoyant in water and showing high photocatalytic activity against organic pollutants.

Unlike titanium dioxide nanoparticles, PHOTOSPHERES can be easily filtered from treated water without blocking conventional filter materials. With a mean particle diameter of 45 microns, PHOTOSPHERES therefore represent the optimised handling and activity solution between the high surface areas offered by titanium dioxide nanoparticles, and the low surface areas of titanium dioxide coated panels and piping.

PHOTOSPHERES can be used in enclosed, artificially illuminated reactor formats using UV light sources. Their buoyancy also enables application in open water systems, such as tanks, ponds and lakes, where solar UV wavelengths stimulate the photocatalytic activity.

PHOTOSPHERES have been shown to successfully degrade organic compounds, such as textile dyes and humic acids in aqueous solutions, and NOx gases in atmospheric tests. The activity of PHOTOSPHERES against Methylene Blue (MB) is shown in Figure 1.

The titanium dioxide surface of PHOTOSPHERES is smooth, continuous and does not shed its coating into the treated water. The size and natural buoyancy of PHOTOSPHERES also means that they are easily recovered and can be reused without significant material losses (Figure 2).

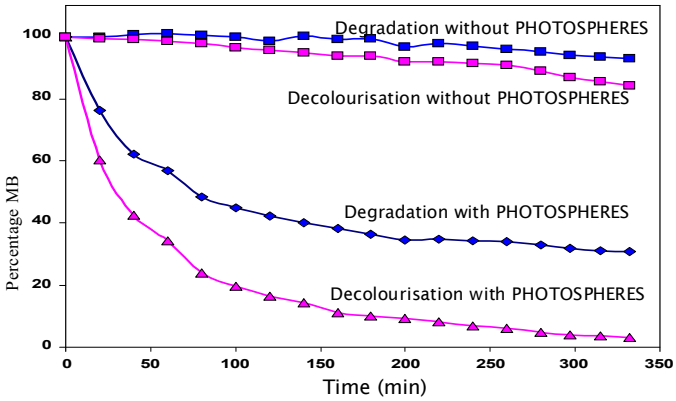


Figure 1: Photocatalytic removal of MB using PHOTOSPHERES (0.5 g/L PHOTOSPHERES, 10mg/L MB, 56W UV lamp)

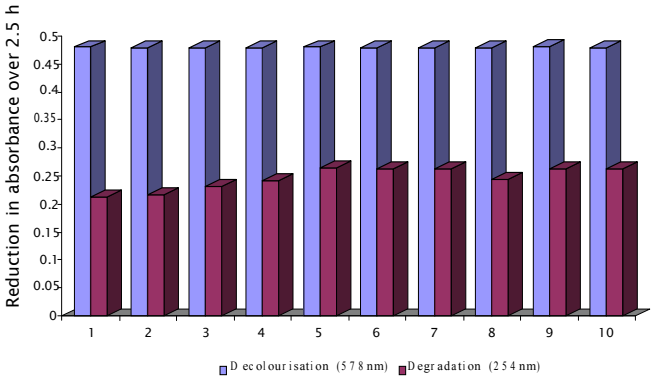


Figure 2: Activity of PHOTOSPHERES over 10 runs

Distributed by:

Cospheric
Innovations in Microtechnology

info@cospheric.com, Phone: +1 (805) 687-3747, www.cospheric-microspheres.com