

Photocatalytic paint to improve air quality

Albert Tarancón, Víctor Izquierdo and Teresa Andreu, Department of Advanced Materials for Energy, Energy Research Institute of Catalonia (IREC)

Intro

The use of solar energy can also improve air quality directly. The extensive use of photocatalytic coating makes it easier for ultraviolet rays to cause a chemical reaction that decomposes contaminants in the air, such as ozone.

Objectives

- Quantify the capacity of photocatalytic paint to improve air quality.
- Observe how certain materials use a part of solar spectrum (in this case, ultraviolet) to catalyse chemical reactions.

Materials

- Photocatalytic paint (which costs approximately €6-9/litre, and is sold in large hardware stores). Click [here](#))
- Methylene blue (which costs approximately €5, and is sold in pet shops for aquariums)
- Flat cardboard of around 10 x 10cm.
- A hair dryer
- Blacklight torch/lamp (which costs approximately €20-25, sold in pet stores and large department stores)
- Painting utensils: roller / brush and tray

Steps to follow

- PAINT the piece of cardboard with photocatalytic paint and dry with the hairdryer.
- STUDY the conversion capacity of the photocatalytic panel.
- DEPOSIT a certain amount of methylene blue onto the photocatalytic panel.
- SWITCH ON the blacklight to observe the oxidation of the organic compound.
- REPEAT the experiment with solar light.
- WRITE DOWN the conversion time of this process.
- PAINT any wall with photocatalytic paint.
- MEASURE and make a note of the painted surface.

Form

GPS / metres squared / improved air quality in one day / photo

Upload the data to turn this effort into a quantitative improvement to air quality.