

Method for removal and degradation of dyes from textiles effluents.

University of Chile has generated a new method for preparing laminar zinc hydroxide organic-inorganic nanocomposites for use in the removal and degradation of dyes from textile effluents.

THE CHALLENGE

Nowadays, the environmental problems associated with hazardous waste and toxic water pollutants have attracted a lot of attention.

Dye removal from industrial effluents, specifically from textile industry, is particularly important because of its effects on public health and decreasing water resources availability.

To solve this problem, this new technology allows to eliminate methylene blue and other dyes present in industrial aqueous waste, mainly in those from textile industry.

THE TECHNOLOGY

The present invention consists of a method to generate new zinc hydroxide-based materials, which allows removal and degradation of methylene blue and other organic compounds from wastewater from industrial effluents, particularly those from textile industry.

Removal of dyes or organic substances involves two independent processes that run sequentially:

(i) Adsorption of dye or organic substances in the nanocomposite, in an aqueous medium.

(ii) Degradation of dye or organic substances adsorbed by heterogeneous photocatalysis.

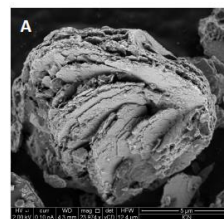
STAGE OF DEVELOPMENT

- Laboratory tests.

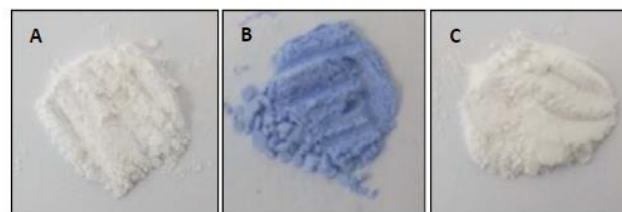
COMPETITIVE ADVANTAGES

- Use of innocuous to health, environmentally benign, abundant and low cost- precursors.

- The photocatalyst can be reused several times after the absorbed species photodegradation process.
- Can be used for absorbing/degrading other organic molecules of environmental interest, which are chemically active such as drugs, pesticides, antibiotics, etc.



SEM image.



Images of a hydroxide nanocomposite. (A) No dye addition, (B) After the dark stirring process and (C) sample recovered after UV light irradiation.

APPLICATIONS

- Textile industry.
- Medical industry.

OPPORTUNITY

Available for **out-licensing** and collaboration in scaling and industrial assembly.

INTELLECTUAL PROPERTY/REFERENCES

- Patent Applications PCT/IB/2018/060510