



## Valorised GREENZO's Zinc Oxide improves the properties of commercial ones.

The particular properties of Zinc Oxide (ZnO) convert it in a unique material with a great variety of applications in multiple industries.

The ZnO is a white chemical compound, obtained in the project in form of powder. It has low solubility in water, but is very soluble in acids. It is found in natural state in the cinzite. Instead, the pilot plant GREENZO has obtained ZnO from recycled waste of zamak injection. The ZnO has been validated in two applications; as a support of catalysers in the reforming of ethanol and as an initiator agent of the vulcanisation of rubber and expanded EVA parts.

The Zinc Oxide (ZnO) is used in the 90% of the catalytic process of the chemical industry, among others, as a catalyser and support of catalysers. The GREENZO's ZnO has allowed to obtain catalysers of reforming of ethanol with high activity, even at low temperatures (250 °C). Additionally, it has a particle size among 2 and 3 times inferior to the commercial ZnO. This innovative properties of the support derivate in the improvement of the catalytic properties of the catalyser of reforming of ethanol.

In the specific case of the rubber pieces' vulcanisation, it has been detected that the impurities present in the Zinc Oxide obtained have allowed to reduce the times for this process in a 10%. Additionally, it has been observed that this ZnO influences in the tonality of the vulcanised rubber.

On regard the EVA foaming, the ZnO activated the vulcanisation process and does not influences in the tonality of the sample once it is vulcanised.

Regarding the physical properties, in both cases it has been tested that the valorised ZnO does not negatively influences density, hardness, abrasion, tear, traction and lengthening of commercial ZnO.

With these results, it can be concluded that the valorised ZnO is suitable for its use in footwear, sport floor and animal flooring.

This project will be developed within 3 years, and it is funded by the European Commission through the LIFE13 ENV/ES/000173 GREENZO instrument. It is coordinated by AIJU; ITQ-CSIC, WORTEUROPE and CAUCHOS KAREY participate in this project.



Components of the meeting in AIJU's hall.

## The European Commission visits AIJU and GREENZO project

Last March, 9<sup>th</sup> a delegation of the European Commission, formed by the officers Santiago Urquijo and Marija Simic, visited the Technological Centre –AIJU– to first hand know the advances of the European project LIFE13 ENV/ES/000173 GREENZO that the RTD coordinates.

Throughout the meeting the Officers could check all the technical, financial and dissemination actions performed. The representatives of the program showed high satisfaction of the advances achieved along the project and offered their recommendations to face this final stage.

The project, that is in its conclusions phase, has obtained Zinc Oxide (ZnO) as of the valorisation of non-ferreous metallic waste. The ZnO highly improves the processing times of Chemical catalysis for the reforming of bio-ethanol and vulcanisation of rubber/ EVA regarding commercial oxides. These were the two

demonstrators undertaken during its development. With this aim, it has developed a pilot plant with plasma technologies that will be displayed in the open doors Day that organises for the next May, 25<sup>th</sup> in AIJU facilities.

## Special: Greenzo's final event

This is the last month of GREENZO project. It has been a real pleasure to be part of this interesting project and, what is most, we are very satisfied with the results achieved.

That is why next May, 25<sup>th</sup> will be held at AIJU facilities the closure event of the GREENZO project. We want to make you participate of the how the two applications of ZnO developed within the project are performing in a more efficient way that with other commercial ZnO. Additionally, it is an important opportunity for the Zamak industry to know how to reduce costs and for other ZnO applicant industries to replicate the results of the project. After a Networking lunch, we will show you the pilot plant developed within the project. We kindly invite you to [get subscribed](#).

## NEXT EVENTS

### [GREENZO final event: Sustainability and efficiency of productive processes through valorised ZnO](#)

25<sup>th</sup> May 2017

Ibi, Spain

### [2nd Green and Sustainable Chemistry Conference](#)

14<sup>th</sup> – 17<sup>th</sup> May 2017

Berlin, Germany

### [4.0 CONNECTED RUBBER](#)

31<sup>st</sup> May 2017 – 1<sup>st</sup> June 2017

Zaragoza, Spain

### [The 7<sup>th</sup> World Hydrogen Technology Convention](#)

9<sup>th</sup> – 12<sup>th</sup> July 2017

Prague, Czech Republic

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8th GREENZO Newsletter\* \*May, 2017\*

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