

CIAC

CIAC (Andalusian Innovation Centre for Sustainable Construction) is a foundation devoted to the development of new building materials towards more sustainable and durable edifices.



Materials

SiO₂ - ZnO

SiO₂ coated with ZnO; can be utilised in building coatings for photocatalytic decontamination of NO_x gases

SiO₂ - APTES

SiO₂ surface coated by (3-Aminopropyl)-triethoxysilane (APTES); can increase the mechanical resistance of building materials by 20%

SUSTAINABILITY GOALS

- To minimise the use of water during the production processes
- To improve durability, therefore extending the life of the products



"Multicomponent nano materials can enhance the properties of building materials, from their compressive strength to their ability to remove dangerous NO_x gases from the atmosphere."

OBJECTIVES

- To help improve the mechanical and photocatalytic performance of materials based on cement mortars and concrete
- To track the life cycle of the materials for better identification of possible release and exposure scenarios
- To identify safer and more sustainable design alternatives without hindering product functionality

SAFETY GOALS

- To lower occupational exposure during the materials' production and handling by replacing the precursors
- To assess the potential release of nanomaterials from the final product to estimate the ecotoxicological and human hazard
- To help reduce the use of harmful substances during the production stage