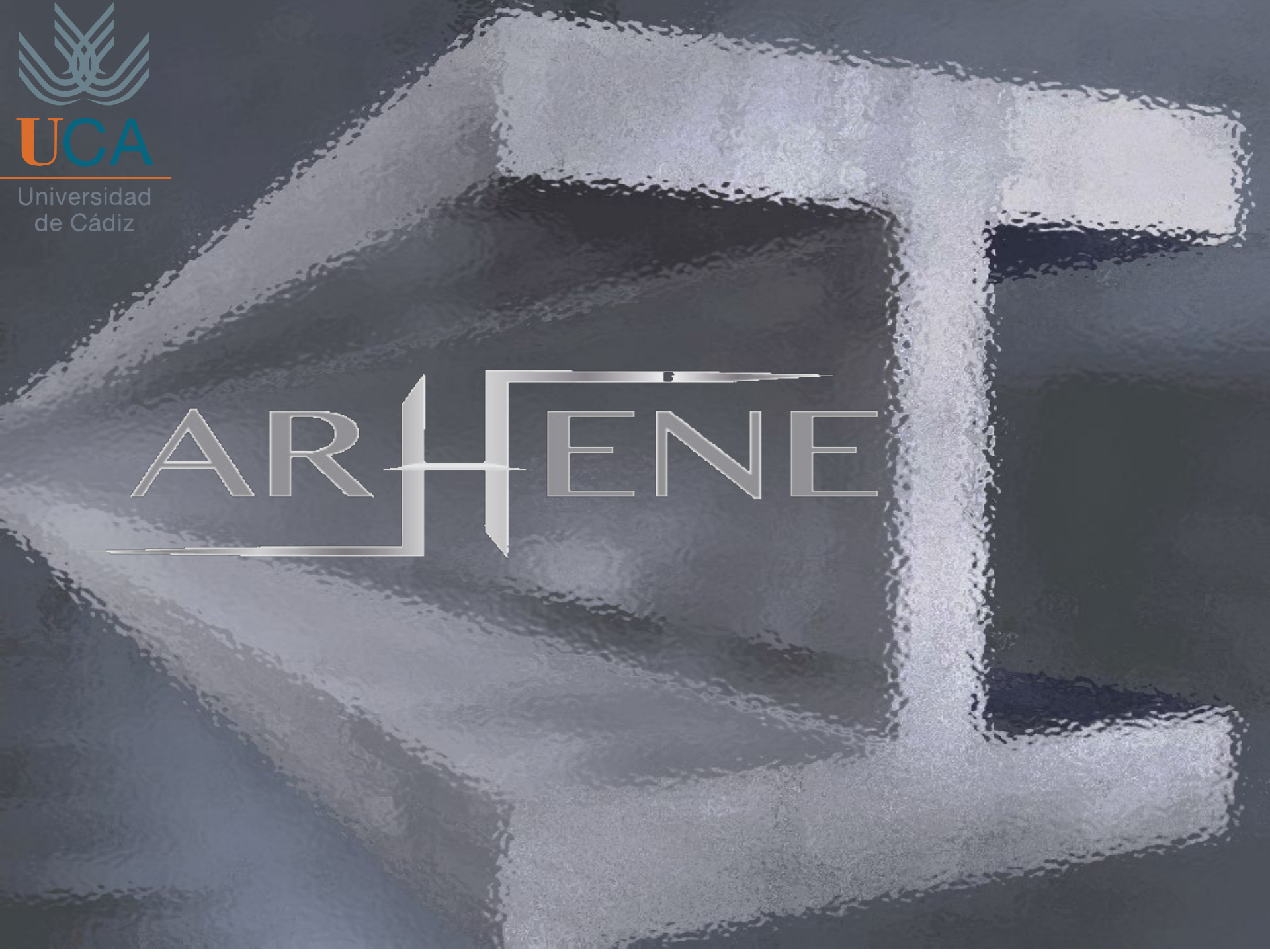




UCA

Universidad  
de Cádiz

# ARTE



**Use of industrial, construction and/or demolition  
waste for the manufacture of Structural and Non-Structural Concrete  
TEP-951**

Composition

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## **LINES OF INVESTIGATION**

Sector development area

**Construction, New materials- (CMD)**

UNESCO Areas

**Concrete Technology**

**Construction Technology**

1. Obtain Ultra High Performance Fiber Reinforced Matrices endurance(UHPFR) and Conventional concrete
2. Rheological, Mechanical, and Concrete Leachate Tests for Application in Contact with the Ground
3. Valuation of industrial waste for addition to UHPFR, and Conventional Concrete
3. Concrete Durability
4. Mechanical-Resistant Properties of Mortar and Concrete
6. Impact behavior

## Proyectos I+D+i y Ayudas

### 1. Project: Reliability analysis and seismic design of buildings in reinforced concrete

Código: AECID: A/030882/10. A/026795/09   Ámbito del proyecto: Internacional {MAEC}  
Fecha inicio: 26/01/2010   Fecha fin: 30/12/2011

### 2. Project: Internal soil erosion

Código: AECID: A/016344/08. A/8816/07   Ámbito del proyecto: Internacional {MAEC}  
Fecha inicio: 26/01/2008   Fecha fin: 30/12/2009

### 3. Proyecto: Seismic vulnerability of historical monuments

Código: ARRABT   Ámbito del proyecto: Internacional {FONDOS FEDER} Año 2007.

## Projects and Aid I+D+i

- EXPERIMENTAL AND NUMERICAL ANALYSIS OF VERY HIGH PERFORMANCE, ECO-EFFICIENT AND SUSTAINABLE CONCRETE(UHPC) Universidad de Cádiz; Universidad de Oviedo; Fecha de inicio: 01/01/2022 Duración: 3 años.
- SUSTAINABILITY OF VERY HIGH PERFORMANCE CONCRETE STRUCTURES (HMAR) THROUGHOUT THEIR USEFUL LIFE Universidad de Cádiz; Universidad de Oviedo; Universitat Valencia: 01/01/2017 Duración: 3 años
- VALORIZATION OF STEEL-MILL SLAG FROM LANDFILL AS A SUBSTITUTE FOR CEMENT IN CONCRETE MANUFACTURING, DRAGADOS CONSTRUCCION and GEOCISA P.O., S.A. Fecha de inicio: 01/11/2016 Duración: 18 meses

## Objetives

The use of waste from the steel process or other waste capable of functioning in concrete matrices is proposed, as an addition to concrete, with the triple purpose of:

1. Help reduce the environmental impact of steel waste, encapsulating it within the concrete as its matrix and avoiding its transfer to landfill.
2. Study the docility of concrete, its resistance in the hardened state, as well as its behavior against said waste.
3. Reduce the amount of cement or aggregate used to create these elements and achieve adequate durability of the concrete thus obtained..

## **Scientific production**

*Study and comparative of Elastic module with partial substitution of Ground Granulated Blast Furnace Slag and Copper Slag of Ultra High Performance Fiber-reinforced Concrete (UHPFRC) (2022)*

*Numerical Modeling of Soil Erosion with Three Wall Laws at the Soil-Water Interface (2021)*

*Influence of Steel Slag Type on Concrete(2021)*

*Effect of the addition of electric arc furnace dust on the mechanical properties and carbonation performance of concrete (2020)*

*Advances in the analysis of properties behaviour of cement-based grouts with high substitution of cement with blast furnace slags (2019)*

*Mechanical, Physical and Environmental Properties (2019)*

## Scientific production

Industrial and intellectual property Registered industrial property title:

Procedure for the manufacture of slag concrete

Andalusia Registration date: 07/24/2014 Grant date: 07/27/2014



Our objective is to investigate giving a new life to waste and focus on it from the perspective of Sustainability and the Circ Economy.



Thank you for your attention

