



CE-SPIRE-07-2020

iWAYS

Full Title: Innovative Water Recovery Solutions through recycling of heat, materials and water across multiple sectors

Aim:

The iWAYS project will develop a set of technologies and systems for industrial processes to recover water, heat and materials from exhaust streams, reducing resource consumption and increasing energy efficiency. The project's ambition is to contribute to a future where the industry is sustainable and emission-less, which will require the state of the art to be advanced in several fields. Each one of these innovations will generate impacts that will benefit not only European industry but society as well.

Concept:

iWAYS will create a new framework to streamline the condensation and collection of water from exhaust stream and purify the recovered water. Water within these streams, that is currently considered impossible or not cost-effective to recuperate, will be recovered by a new type of Heat Pipe Heat Exchanger and a water treatment system. At least 90% of the treated water will be recovered. iWAYS solutions will produce a huge reduction in freshwater consumption and improve water efficiency - by up to 30% - with an extensive system analysis of the industrial production sites involved. iWAYS operational changes will also recover heat. A substantial reduction in heat waste and energy consumption (from 10% to 80% heat recovery) will be introduced by recovering thermal energy and sensible heat. The recovery of water, heat and materials, from exhaust streams, will represent a huge environmental benefit including reduction of 60% of final gaseous pollutants and more than 70% mass flow of gaseous emissions. Three use cases will validate the iWAYS solutions in the ceramics, chemicals and steel tubes industries.

Start date:

01/12/2020

End date:

30/11/2024