



icarus

Demo Case 2

Upcycling of industrial and urban cellulosic waste

Challenge

CELLULOSE IN WWTP

Toilet paper consumption in EU: 21 g/person/day

Potential recovery: up to 4.3 Mton/year (EU)

Current uses: no current use, it is degraded together with the rest of organic matter WWTP.

CELLULOSE IN ABSORBENT HYGIENE PRODUCTS (AHP) WASTE

Global waste: 30 Mton/year (EU: 8.5 Mton/year)

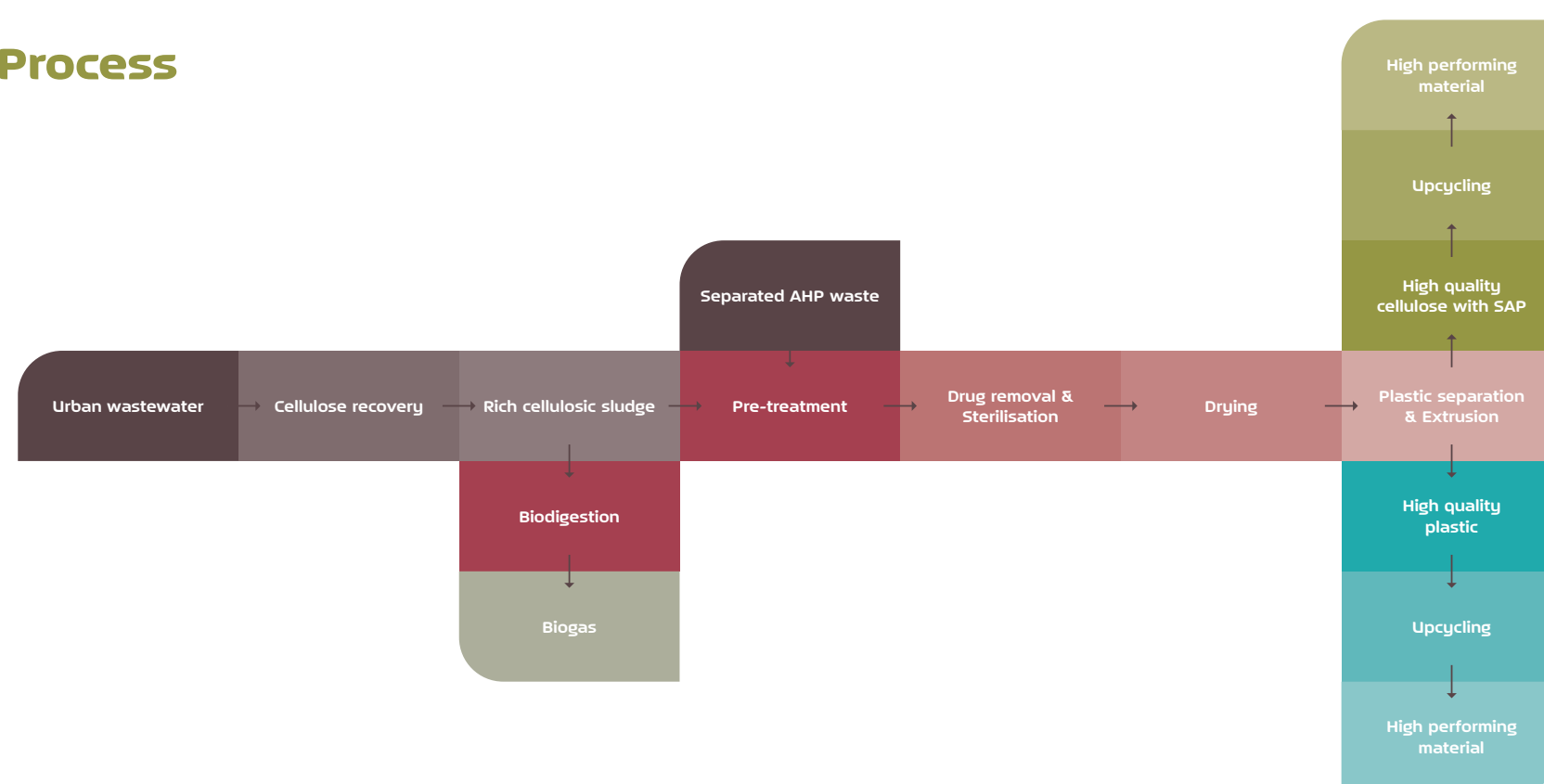
1 ton of AHP is about 225 kg of cellulose

Current use: no use, incineration or landfill

What we do

Demo Case 2 develops a system to recover cellulose from wastewater and hygiene products, recycling it into construction materials and exploring chemical industry applications. An AI-powered digital platform optimises the process for consistent quality of recovered materials.

Process



Key results

Installation of the Rotating Belt Filter at Sant Celoni WWTP, Spain, for the extraction of cellulosic sludge from wastewater (Maximum wastewater flow: 30 m³/h).

Demo plant for cellulose recovery from AHP and WWTP cellulosic sludge installed in Italy (100 kg/ batch capacity).

Preliminary analyses carried out on cellulose recovered from AHP waste.

Tests with different dosages of cellulose in concrete slab formulations.



Replication potential and impact

Circular economy objectives, by transforming waste into valuable secondary raw materials.

Reduction of landfill and incineration, decreasing environmental pollution.

Decarbonisation of the construction sector, through the use of recycled cellulose-based materials.

Innovation in the chemical industry, by introducing new bio-based inputs.



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Key partners



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