REcycling of Complex AHP waste through a first time application of patented treatment process and demonstration of sustainable business model

(RECALL)

AHP is the category name for baby diapers, sanitary protection pads, tampons, adult incontinence products, personal care wipes, and represents nowadays one of the most challenging post-consumer type of waste. Today, the post-consumer AHP waste represents about 2% of Municipal Solid Waste. It is not recycled and belongs to the “non-recyclable” municipal waste fraction. It is typically disposed of via either landfill or incineration, thus causing loss of valuable material resources and high economic and societal costs (more than 900,000 tons/yr of AHP waste are still incinerated or landfilled in Italy, 8,500,000 tons/yr in Europe and 30,000,000 tons/yr in the world). The RECALL project offers an economic and environmental friendly solution to the AHP consumers, municipalities, operators in the field of waste management and recycling, AHP producers and last but not least to citizens, by realizing a first application of a recently proven new recycling process for post-consumer waste of AHP. The recycling of the post-consumer waste of AHP occurs through a simple and reliable process, without use of chemicals and without combustion. Through the effect of steam and pressure in an autoclave, post-consumer AHP waste are sanitized, de-composed and dried, leading to the recovery of its valuable components (mostly high-quality cellulose and specialty plastics).

Benefits

The main benefits of RECALL project are:

- (Environment) Reduction of greenhouse gas: the end of life of diapers becomes carbon negative;
- (Municipalities) Lower disposal cost;
- (Residents) Efficient separate collection service for personal absorbing;
- (Economy) New business opportunities for waste companies
- (Consumers) The advantage to choose diapers with the best performances with no compromises for after-use.

Results

The most important results obtained in RECALL project are:

- (Environment / LCA) The recycling process is a process from “carbon neutral to carbon negative”, that is a process in which CO₂ emissions saved by recycling processes (both the production of plastic granules and of
cellulose) are bigger than emissions that are necessary for waste collection, separation and treatment processes;

- (Environment / LCA) The recycling process is the most environmentally friendly process compared to landfill or incineration. Besides minimizing harmful emissions, associated with combustion processes or anaerobic degradation, and reducing land use, recycling allows lower CO2eq emissions compared with undifferentiated waste disposal (336.9 kg of CO2eq/t of AHP waste), that is an annual saving of more than 57 million of kilograms of CO2 for the total of used diapers produced in Italy in one year;
- (Market Replication) RECALL has already received 11 Letters of Interest from municipality and waste operator company and from 4 potential users of RECALL secondary Raw Materials;
- (Market Replication) A favourable landscape under point of view of EU Directives & Policy.
- (Market Replication) 8 million people in Italy have already access to segregated/dedicated AHP waste collection services;
- (Economical benefits) Separate waste collection systems with recycling have a cost that is equal to or less than separate waste collection with disposal in landfill and/or incineration;
- (Economical benefits) RECALL process is a big opportunity of new business for the waste company where the operator have 2 different kind of incomes: (i) gate-fee; (ii) revenues come from the sale of high value secondary raw materials (in the landfill scenario there is only gate-fee income);
- (Economical opportunity) Many potential users have already manifested their interest to buy plastic and cellulose fractions for an amount of material higher than the best estimated production of RECALL plant.

**Partners and coordinator**

**CONTARINA SPA** [1]  
Italy

**Contact**

**Budget**

Overall budget: 2.683.030,00 € (EU contribution: 1.340.413,00 %)

**In brief**

Sector: Recycling

Duration: 19/07/2012 to 18/07/2015

Contract number: ECO/11/304440

Website: http://recall-ecoinnovation.eu

**Tags:**

- by-products
- waste
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