



ENVACTCRB - Activated carbon manufacturing using xylite charcoal for environment application

LIFE02 ENV/RO/000461



[Project description](#) [Environmental issues](#) [Beneficiaries](#) [Administrative data](#)
[Read more](#)

Contact details:

Project Manager: Georgeta PREDEANU

Tel: 40 (1) 2205506

Fax: 40 (1) 2204295

Email: gpredeanu@metal.icem.ro



Project description:

Background

The need to observe environmental standards and to preserve nature in line with European Union strategies and objectives is leading to the extensive use of various absorbents for the purification of gases and water. Traditionally, activated carbon is the main product used for that purpose. It fixes and retains the substances effectively from the fluids which it comes into contact with. Nowadays, the use of ecological products is a visible trend worldwide. In this context, a continuous rise of activated carbon production (30% over the last decade) has been observed in particular with respect to its utilisation in the area of environmental protection (purification of waste gases and waters). In Romania, low rank coals – xylithes - due to their woody like physico-chemical and structural characteristics, are promising materials for the production of carbonaceous absorbents, charcoal and activated carbon.

Objectives

The objective of the “ENVACTCARB” project was to develop a clean technology based on the recovery of xylite waste from brown coal in order to obtain a new ecological product – activated carbon. The main goals of the project were: • recycling of xylite (fossil wood), which represents in fact a waste material and an

undesirable component for the lignite combustion process in power plants; • creating a new ecological product, xylite activated carbon, by the application of a new, non-polluting technology. The new product was to have a uniform porous structure, comparable to or higher than the classical absorbents; • promoting the utilization of the activated carbon in the purification processes. The main actions were to be as follows: 1. Design and build a prototype that can produce 50 tonnes/year of activated carbon from xylith; Homologation of both product and technology; 2. Identify the opportunities for using the heat generated during the production of activated carbon (for household heating systems); 3. Design the process of taking the xylite from dumping sites, process it to turn it into a suitable raw material; 4. Conduct a Market Review to identify potential users and producers of the activated carbon.

Results

The “ENVACTCARB” project was successful: the objective to develop a technology to process the xylite (waste) into activated carbon was reached. The prototype, which has a capacity of 50T/year, works correctly and the carbon is of satisfactory quality to enter the market. The technology was homologated and the basic calculations are available for the technological and economic parts. Furthermore, the beneficiary elaborated a full Business Plan that presents the basic input data and the rationale for starting such a business. Turning this achievement into a full commercial and competitive technology would however require further improvements: increased technical reliability and a detailed marketing and promotion strategy for both the technology itself and for the obtained product. These activities were not provided as such in the project’s proposal, only the elaboration of basic business start-up documentation was mentioned. Full industrial scale development can hence only be assessed in an ex-post evaluation. Facing competition is a further challenge ahead, both from the qualitative side, e.g. the carbon originated from the coconut’s shell, and from the pricing side – the carbon originated in China. The project activities promoted environmentally friendly solutions: - The xylite from the dumping sites was abstracted to reduce the environmental impact to a maximum; - When processing the xylite to turn it into a raw material, the project considered ways of using the xylite fractions that could not be used as raw material for activated carbon; - Using the residual heat from burning the xylite; - Promoting the activated carbon from xylite as an ecological product. It was expected that the recovery of large amounts of xylite waste from mining activities, will lead to a significant improvement in the quality of the local environment: less space will be occupied by xylith dumping sites, and the negative effects of beech wood deforesting would be reduced, by the utilization of an alternative raw materials source (xylite) for activated carbon manufacturing. Finally, the project might have some socio-economical implications in the future: - creation of new jobs in a new environmental business market; - economic and social rehabilitation of the closed-down mining regions; Dissemination was well planned, targeted and intense. The dissemination activities were conducted following the Dissemination Plan, which was elaborated at the beginning of the project. Four target groups were defined and products were developed to meet the target’s needs. I) investors in the technology and policy-makers, ii) end-users of the carbon, iii) professionals, iv) general public. The main dissemination products were as follows: - The website of the project

<http://www.icem.ro/life1/SiteLife/index.html> - A quarterly Bulletin:
Ecoproducts/ Eco-activated carbon (eight issues produced) - A presentation brochure and a project CD - A film (40 min) in DVD, English and Romanian versions - Layman's Report The project was presented at 14 international workshops. Press Releases were distributed to 32 central and local newspapers and seven major articles were published. The "After Life Communication Plan" comprised: participation in 6 international thematic workshops/meetings, permanent update of the website, continued distribution of the printed LIFE project products (e.g. CDs). In 2006 the beneficiary has started to implement the follow-up project "Innovative technologies for sustainable manufacturing and use of some multipurpose carbon materials by wastes recycle for environment application. The project represents the widening of LIFE ENVACTCARB technology towards vegetal wastes on multipurpose carbon materials manufacturing and obtaining of selective filters based on high grade adsorbents capable to retain some pollutants from the air and water streams. *This project has been selected as one of the 21 "Best" LIFE Environment projects in 2005-2006*

[Top](#)

Environmental issues addressed:

Themes

Environmental management - Cleaner technologies
Waste - Waste recycling

Keywords

clean technology, treatment of gases, alternative material

Target EU Legislation

- Waste
- Directive 1999/31 - Landfill of waste (26.04.1999)

Natura 2000 sites

Not applicable

[Top](#)

Beneficiaries:

Coordinator	Metallurgical Research Institute - ICEM
Type of organisation	Research institution
Description	ICEM S.A. (Metallurgical Research Institute) is an institute specialised in metallurgy applied research, including the manufacture of activated carbon. It also has expertise in the manufacture and tests of absorbents. The Institute owns the Romanian invention for the "Procedure and installation for producing a precursor for activated carbon manufacturing", which was to be applied in the LIFE project.
Partners	MOTRU MUNICIPALITY IPROCHIM SA THE NATIONAL COMPANY OF LIGNITE OLTENIA, SA Targu Jiu

[Top](#)

Administrative data:

Project reference	LIFE02 ENV/RO/000461
Duration	01-JUL-2002 to 30-JUN -2005
Total budget	830,820.00 €
EU contribution	390,160.00 €
Project location	Associated Romania(Romania)

[Top](#)

Read more:

CD-ROM	Title: "Activated carbon manufacturing using xylite charcoal for environment application" LIFE project
Project web site	Project website
Publication: Book	Title: Description of xylite activated carbon technology No of pages: 28
Publication: Layman report	Title: Layman report Year: 2004 No of pages: 13
Publication: Research findings	Title: Study on valorisation of secondary energy No of pages: 90
Publication: Technical report	Title: Report on the activated carbon quality No of pages: 34
Video feature	Title: "Activated carbon manufacturing using xylite charcoal for environment application" LIFE project (DVD)

[Top](#)

[Project description](#) [Environmental issues](#) [Beneficiaries](#) [Administrative data](#)
[Read more](#)