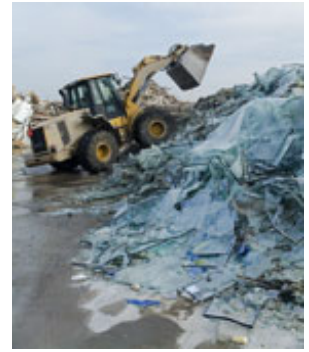




LIFE FLAT to FLAT - Demonstration of an innovative fine crushing method for glass and alternative cullet in flat glass production

LIFE12 ENV/BE/000214



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Project description:

Background

Glass is a key element for many industries. In 2006, the world market for flat glass was estimated at around 42 million tonnes. Growth in the demand for flat glass has generally outpaced real GDP growth for the past 20 years. The production of glass, however, requires high levels of energy and raw materials, and leads to the emission of various pollutants. The current energy necessary to produce one tonne of glass amounts to 6-7 GJ whereas the theoretical minimum energy level required would be 2-3 GJ – the energy necessary for the materials needed in the glass composition to melt.

Furthermore, the fraction of cullet – or glass waste – used for recycling accounts only for 30% of the total production. For quality control reasons, flat glass producers reuse only internal cullet (production losses and glass with colour faults) and some industrial cullet (from subsidiaries and recyclers). In addition, glass production entails the emission of atmospheric pollutants (e.g. CO₂, SO_x, NO_x) and the use of large quantities of water and raw materials (sand, minerals and metals).

Objectives

This project aims to develop and validate an innovative method for recycling and up-cycling glass and other waste materials in the production of flat glass. This aim will be achieved through an innovative grinding technology that allows the

content of recycled materials of the final flat glass to be raised to 25%, and the use of up to 55% of glass cullet.

The recycled materials introduced in this project will come from sources that could not previously be used by the glass industry (e.g. glass fibre) because of their negative impact on glass quality and the production process. The innovative processing technique will also make it possible to use cullet that contains 1 000 times more ceramics, stone, and porcelain (CSP). The project will cover the entire glass lifecycle, thereby not only demonstrating the technique, but also defining its infrastructure. Besides a significant reduction of the use of raw materials, it will also lower energy consumption by 5% and CO2 emissions by 12%.

Expected results: The project expects to increase to 25% the reuse (recycling/up-cycling) of raw materials (cullet and industrial waste, such as fibre glass) in the production of flat glass.

It will build a pilot installation capable of treating 50 000 tonnes/day of recycled materials to reduce energy requirements. For a typical float line with a yield of 600 tonne/day, this will lead to savings in raw materials (25%); CO2 (12%); and energy (5%).

For one float line, the following savings could be achieved:

- 50 000 tonnes/yr of raw material;
- 15 000 tonnes/yr of CO2; and
- 20 600 MWh of energy (calculated using a nominal energy use of 6.75 GJ/tonne of glass).

Results

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Environmental issues addressed:

Themes

Environmental management - Cleaner technologies
Industry-Production - Non-metallic minerals

Keywords

emission reduction, greenhouse gas, raw material consumption, alternative technology, industrial process, energy saving, waste use, waste recycling, glass industry

Natura 2000 sites

Not applicable

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Beneficiaries:

Coordinator	AGC Glass Europe SA
Type of organisation	International enterprise
Description	AGC Glass Europe is one of Europe's largest producers of flat glass for the construction and transport industries. The AGC R&D centre is AGC group's second worldwide research centre, employing 206 researchers. This centre focuses on developing innovative solutions for glass production and providing technical assistance and scientific advice.
Partners	AGC France S.A.S., France Vlakglas Recycling Nederland, The Netherlands

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Administrative data:

Project reference	LIFE12 ENV/BE/000214
Duration	01-JUL-2013 to 31-DEC -2017
Total budget	10,477,106.00 €
EU contribution	4,433,050.00 €
Project location	Région Wallonne(België - Belgique),Nord-Pas-De-Calais(France),Zuid-Holland(Nederland)

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