

FACT SHEET

CEMENT ADDITIVE: A 2ND LIFE FOR GLASS COLLECTED VIA CURBSIDE RECYCLING



MARKET FOR RECYCLED GLASS AS A CEMENT ADDITIVE

Cement additives can be made using glass that is recovered and pre-sorted at the sorting centre, purified and ground to a fine powder a few dozen microns in size. It is used mainly in a mix with traditional ingredients to make concrete, providing better structural resistance, impermeability to chloride ions, durability and easy handling during application on work sites. Similarly to other cement additives, glass powder reduces production costs and GHG emissions per cubic metre of concrete generated. That last point is all the more important for cement manufacturers as this industrial sector is targeted by Quebec's GHG emission cap and trade system (carbon exchange).

TARGET MARKET AND POTENTIAL POOL OF CUSTOMERS

Public works is one of the main markets for cement additives that include glass collected via curbside recycling, particularly for non-structural equipment and installations. Cement and concrete manufacturers working in the construction industry (road infrastructures, sidewalks, sound abatement walls, urban furniture) are the main customers for glass powder used as a cement additive in concrete.

The market potential of this material is huge and could top 100,000 t/year, the equivalent of the glass collected via curbside recycling in Quebec



MARKET

The market for using glass powder is more mature in the U.S., while it is still growing in Quebec.

COMPETING MATERIALS

Other materials compete with powdered glass as cement additives, including:

- Fly ash from coal-fired plants
- Combustion residues from the metal industry
- Silica fumes

MARKET FOR RECYCLED GLASS AS A CEMENT ADDITIVE

The construction industry is the main market outlet for powdered glass as a cement additive. According to the Association de la construction du Québec (ACQ), \$45 billion was invested in the construction industry in 2014. This sector therefore constitutes a significant market for this material.

POSITIVE MARKET PENETRATION INDICATORS

- Glass powder is produced locally and therefore incurs lower transportation costs compared to other cement additives that must be imported to Quebec.
- Glass powder gives concrete very attractive properties, including:
 - Smaller environmental footprint
 - Impermeability to chloride ions
 - Better structural resistance
 - Better handling of concrete



TECHNICAL CRITERIA AND CERTIFICATION

CERTIFICATIONS

Two types of certification demonstrate the qualities of glass powder and encourage its use:

- Certification of glass powder as a cement additive (CSA A3001-13 standard)
- Certification of concrete made with glass powder for certain applications

While certification for this material is not required when used for urban furniture or sidewalks, it is necessary for other applications, such as roadwork, as this sector is subject to Transport Québec standards.

CRITERIA

Certification criteria to demonstrate the performance of concrete depends on the intended application. General criteria include:

- Durability
- Resistance to rutting
- Density
- Humidity
- Granulometry



All the details at www.ecoentreprises.qc.ca/glass
For more information: verre@ecoentreprises.qc.ca