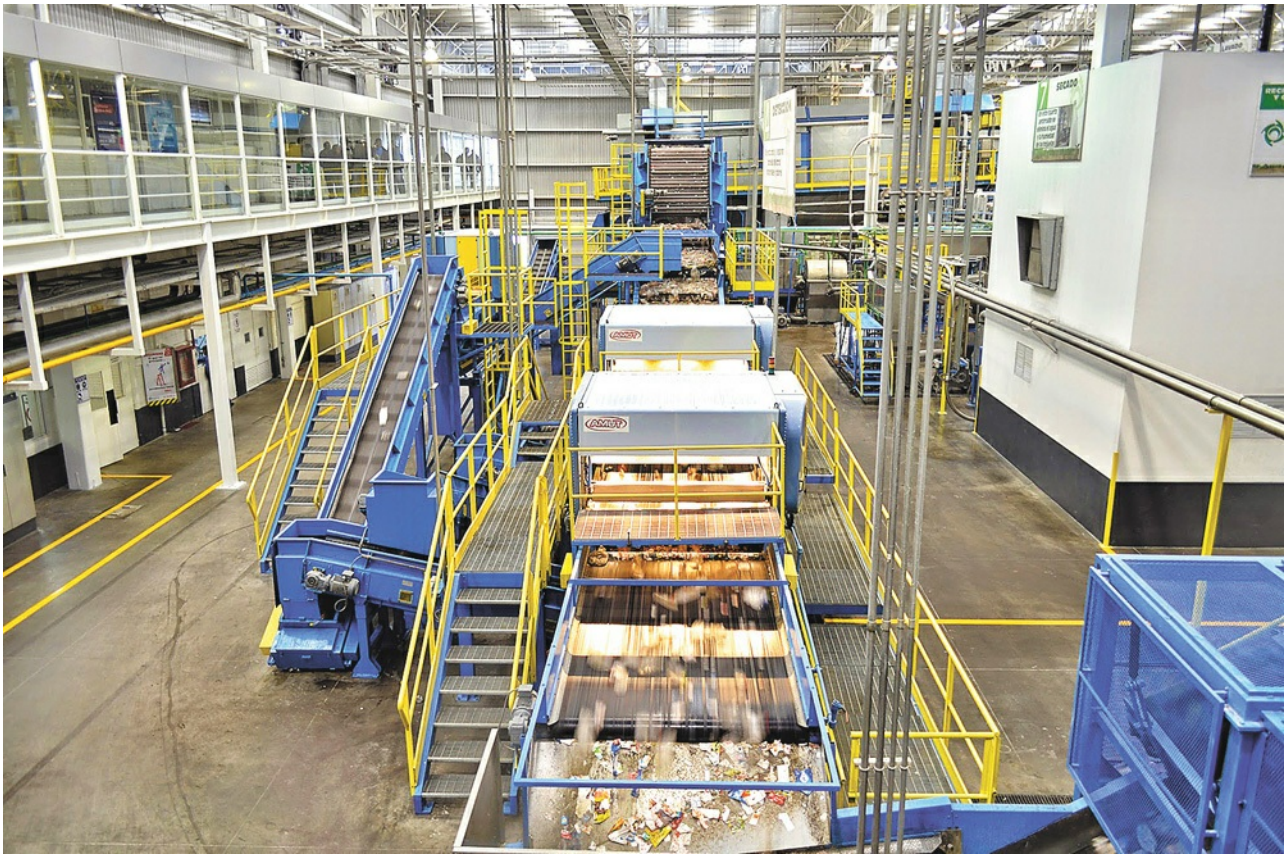
PET bottle regeneration plant

by Florence Champ / 2017-05-03 15:01:13 / International / 6489 / EN



Year of commitment : 2014
CO2 Impact : Based on a production of 50 000t recycled PET : reduction of GHG emission = -82500 t CO2e/an

500 000 €

Circular economy and waste management : Industrial Ecology, Optimization of ressources, Optical separation, Chemical recycling

GENERAL INFORMATION

Context
Plastic is everywhere in Mexico. The country is the third largest consumer of PET. However, waste treatment processes are not well adapted and plastic is released into the environment or landfilled. Mexico City has some of the biggest open landfill sites in the world.

Project
One of the world's largest recyclers of food-contact-grade PET opened in 2006 in Toluca, around 60km from Mexico. In 2014, 75 000 tons of PET were collected resulting in a production of 50 000 tons of recycled plastic.

Optical sorting equipment was provided by Pellenc ST and installed in 2010. And thanks to the satisfactory return on investment, PETStar has decided to double its sorting line with the latest generation of Pellenc machines.

Greenhouse gas challenges
The plant was built so as to treat plastic waste generated by Mexico and to avoid landfilling. But it also reduces the carbon footprint of bottles made with recycled plastic. We only need 7MJ/kg to produce recycled PET against 84MJ/kg for virgin PET.

Case study
A. 50 000 tons/year virgin PET production

System boundaries :

- Emissions from the oil extraction to the pellets production

Datas used for calculations :

- One ton of virgin PET production : 2,15 t CO2e/produced ton (source : Plastics Europe)

+107 500t CO2e/year

B. 50 000 tons/year recycled PET production

System boundaries :

- Waste collection and transport to the facility

- Internal transport by freight elevator

- Facilities, equipment and vehicles amortizations

Datas used for calculations :

- Actual consumption data

- Basic factors of "Base Carbone"

+25 000 CO2e/year

GHG emissions reduction : 25 000 - 107 500 = 82 500t CO2e/year

Progress Status

Delivered

Data Reliability

Self-declared

Funding Type

Private

Website Enterprise / Infrastructure

http://www.petstar.mx/empresa
http://www.construction21.org/france/data/exports/pdf/.pdf

Sustainable Development

Attractiveness :
Well Being :
Social Cohesion : Creation of a museum with educational tools for schools (http://www.petstar.mx/museo)
Preservation / Environmental Improvement :
Responsible use of resources : Petstar optimizes resources giving to waste a second life

Testimony / Feedback

Video

Governance

Petstar

Holder Type : Private Company

Builder Type : Other

Manager / Dealer Type : Private

Business Model : Modèle économique : PET bottles recycling plant

Sustainable Solutions

Optical sorting machine : Mistral

Description : Pellenc ST optical sorters uses near infrared spectroscopy to separate waste strams by material and/or color

- Circular economy
- Waste management

Company (es) Website :

Contest

Reasons for participating in the competition(s)

Recycling and Greenhouse gas (GHG) emissions
Recycling can contribute to reduce greenhouse gas emissions in 2 ways : - By subsituting virgin material with recycled material- By avoiding end-of-life emissions from other forms of waste treatment (incineration and landfilling)
The energy (responsaible of GHG emissions) required for the production of a recycled product is often lower the energy (responsible of GHG emissions) of the same virgin product. As a result, we estimate that GHG emissions from virgin product production are avoided.

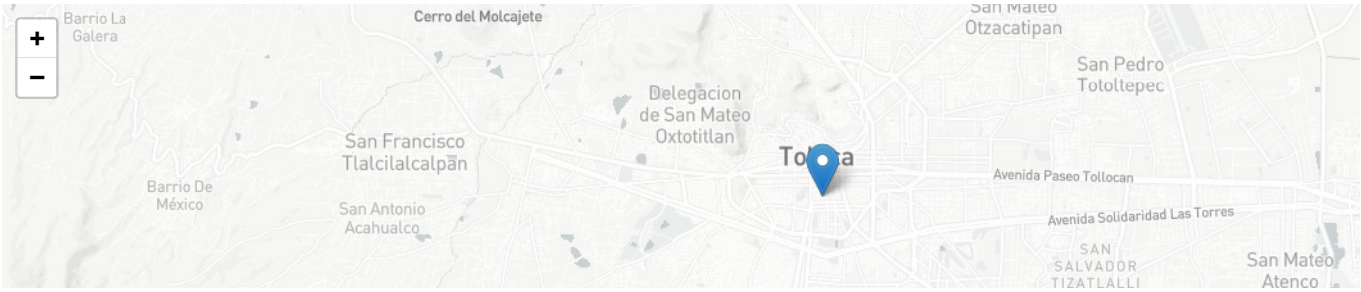
The other potentiel source of emission avoidance is the fact that the is not incinerated. The incineration of waste, like plastic, generates CO2 emission

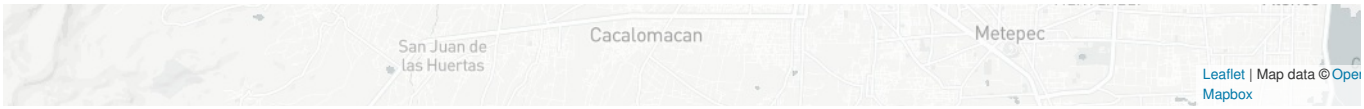
Building candidate in the category

Green Solutions AWARDS powered by Construction21.org

Users' Choice

Sustainable Infrastructure Grand Prize





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