Company	Sector:	Location:
Vestolit	PVC resin	Tlalnepantla de Baz, Mexico

Date: September, 29th, 2020

ABOUT VESTOLIT

Mexichem Resinas Vinílicas, known as Vestolit, is a worldwide company that belongs to Orbia business group. It has production plants in Germany, USA, Colombia and Mexico. Produces and markets PVC resins (Polyvinyl Chloride). One of its plants in Mexico is located in Tlalnepantla de Baz and is called Planta La Presa. This plant manufactures PVC resin through the polymerization of VCM by suspension. Its annual production is approximately 17,000 tons, (2019 data).

MAIN PRODUCTS

PVC comes from the polymerization of Vinyl Monochloride (VCM). It is classified as one of the most versatile plastics, when mixed with additives can be transformed into rigid, flexible and thermoplastic products. Its properties include a high capacity for thermal, electrical and acoustic insulation, low flammability, non-toxicity, impermeability to liquids and gases, excellent mechanical resistance and asepsis. It is 100% recyclable. The micro suspension type PVC resin is mainly used for the manufacture of low viscosity pastes such as plastisols or other flexible materials.

It is used mainly for the manufacture of plumbing pipes, construction applications such as window frames, floors, roofs, and even complete houses. Likewise, in the automotive industry, in clothing, food packaging, infusion elements, oxygen masks, blood bags and medicine packaging, among others.

WATER CONSUMPTION

Total water consumption includes both: indirect consumption during the manufacture of raw materials and their transport to Mexico, as well as direct consumption in the plant associated with the production process.

- Direct
- Indirect

-1%

99%

Detail of both direct and indirect consumption

2.6%   0.4%   0.4%   -1%

96%

- Vinyl Chloride
- Other materials
- Energy and waste
- Production process
- Transport

CONTEXT

The polymerization process is carried out in a liquid medium consisting mainly of water. For this purpose, the plant is supplied with water in 41% of underground wells (the Moctezuma river basin is part of it) and in 59% of the wastewater treatment plant managed by The Water Users Society of San Juan Ixhuatepec (ASJISU) whose water comes from the Cutzamala basin. The final discharge is conducted into the Río de los Remedios, a body of water that receives all industrial and municipal waters that are treated by ASJISU.
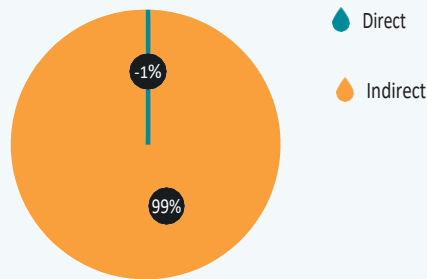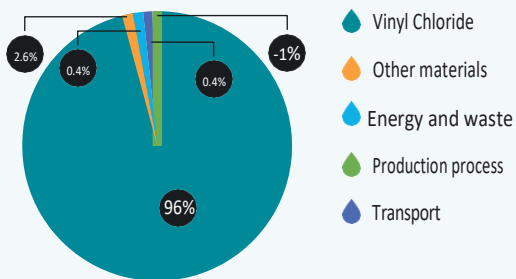
GOAL AND SCOPE

Quantify the water footprint of suspension PVC resin produced at Vestolit La Presa plant, in 2019.

SYSTEM BOUNDARY

From raw material supply to manufacture stage (cradle to gate).

FUNCTIONAL UNIT

Production of 1 ton of suspension PVC resin.

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WATER FOOTPRINT PROFILE

The main impact on water scarcity is due to Vinyl Chloride production in Texas-USA, which has a medium water stress. The impact of Vestolit plant is mainly related to electricity and natural gas consumption for the operation of machinery and equipment, steam generation, resin drying and the use of wooden pallets as auxiliary material for the packaging of the product.

Scarcity derived from the production process is minimal since La Presa plant consumes wastewater as a supply source.

AREAS OF OPPORTUNITY

Review the possible supply of energy from renewable sources or cogeneration projects, since the consumption of water associated with electricity generation contributes with a considerable impact on the water footprint.

Look for alternative materials to wooden pallets that are required for packaging and transport of resin, since their impact on ecotoxicity is significant.

MAIN MITIGATION ACTIONS

Establishment of objectives for corporate water management, which reduce the consumption of fresh water from underground wells and promote the use of waste and industrial water.