



Company
Vestolit

Sector:
PVC resin

Location:
Santo Toribio Xicohtzinco, Tlaxcala, 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 Santo Toribio Xicohtzinco and is called Planta Tlaxcala. This plant manufactures PVC resin through the polymerization of VCM by emulsion. Its annual production is approximately 9000 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.

Emulsion type PVC resins are used mainly for the manufacture of vinyl fabrics, waterproofing films for roofs and swimming pools, organosols, wallpaper, mechanical foams, among others.



CONTEXT

The polymerization process is carried out in a liquid medium consisting mainly by water. For this purpose, Talxcala plant is supplied with water from two underground wells (they are part of Río Atoyac account) that present low water stress. The final discharge is conducted into an industrial water tank that later has an outlet to the Atoyac river.



GOAL AND SCOPE

Quantify the water footprint of emulsion PVC resin produced at Vestolit Tlaxcala plant, in 2019.



SYSTEM BOUNDARY

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



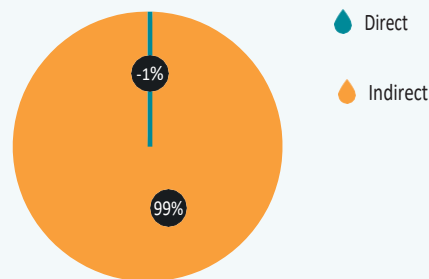
FUNCTIONAL UNIT

Production of 1 ton of emulsion PVC resin.

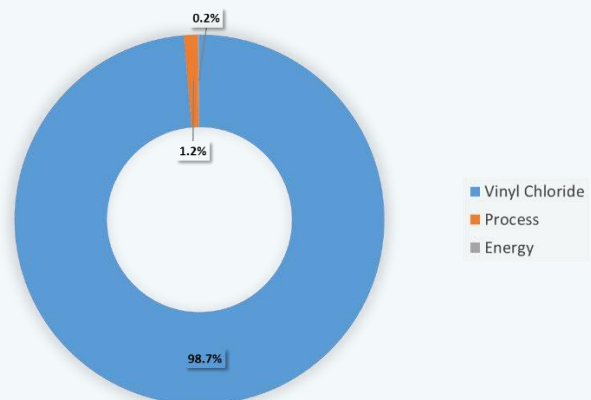


WATER CONSUMPTION

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.



Detail of both direct and indirect consumption





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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.



AREAS OF OPPORTUNITY

Increase the reuse of water inside the plant or in synergy with third parties since the final discharge is conducted into an industrial water lagoon and is not reused later.

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



MAIN MITIGATION ACTIONS

Establishment of objectives for corporate water management, which reduce the consumption of fresh water from underground wells and avoid wastewater discharges to Atoyac river.

