

Wictor

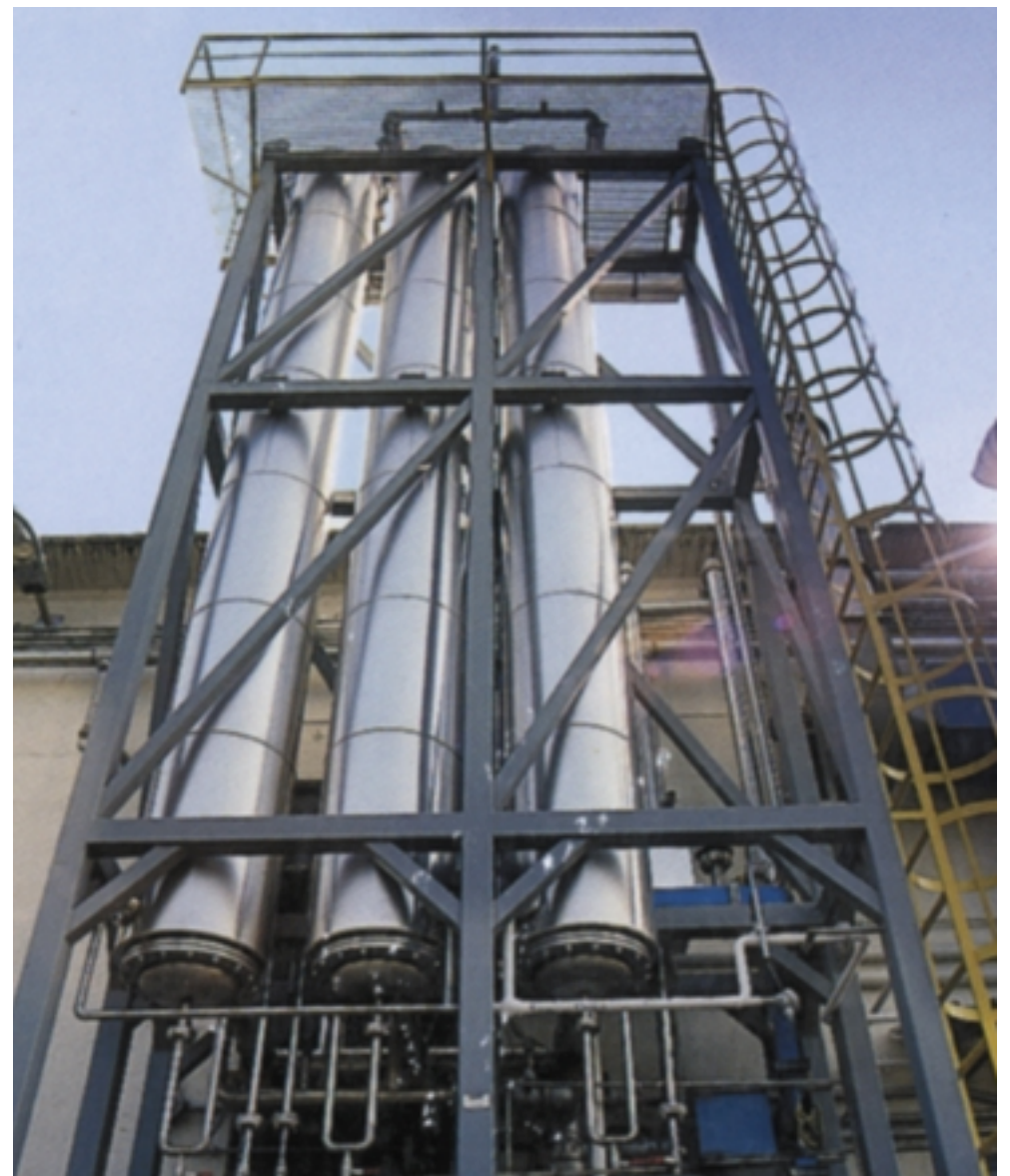
Product Improvement Winner

Wictor, based in Italy, produces solvent-based adhesives for use in the production of shoes, leather and furniture. Though Wictor's main factory is located in Palazzolo sull'Oglio there are five other factories located in four other countries employing a total of 70 people. Wictor has been a member of the Responsible Care programme since 1997 and was awarded an ESIG Solvent Stewardship Award in the category of Best Product Improvement in 2000.

Reduction of VOCs Emission By Cryogenic Condensation

Wictor has installed equipment to collect solvent vapours, which are then condensed using liquid nitrogen.

All solvent vapours generated by the filling or emptying operations of mixers and vessels, are collected by pipeline and sent in high concentration, to a specially designed plant containing liquid nitrogen. For reasons of efficiency, the plant is structured in three columns, two of which work alternately (A&B) and the third of which works continuously (C). The vapours containing



VOCs are first delivered into the outer shell of the condenser, which is wound with a specially designed configuration of spiraled tubes. Liquid nitrogen is released into the emissions vaporising the nitrogen and condensing the VOCs. The gaseous nitrogen is then reused to displace the solvent vapour in the mixers and vessels. Finally the condensed VOCs are collected into an Intermediate Bulk Container (IBC) and reused as solvent for Polychloroprene adhesives.

This method recovers and reuses approximately 250 Kg of solvent per day. The yield of condensation vapour recovered is above 99% of the original volume of solvent used and this represents a reduction of 50% of the total factory emissions in both the working area and the external environment.

Development of dearomatised hydrocarbon solvent.

Wictor traditionally used an aromatic solvent in its adhesives manufacture, but has recently developed a new solvent mixture based on dearomatised hydrocarbon solvents. In addition to environmental considerations, Wictor has worked on the industrial hygiene aspect of their products by developing improved formulations.



Wictor's aim was to replace aromatic solvents in an adhesive for bonding laminates. This was successfully achieved by developing a formulation using dearomatised hydrocarbon solvent instead of an aromatic one. The dearomatised solvent has an Occupational Exposure Limit (OEL) almost three times higher than the previous mixture. A higher OEL indicates

that that a product is safer as by definition, the OEL is the concentration that workers may be exposed to without a risk for adverse health effects. In addition to this health factor, the mechanical properties of the new solvent mixture are comparable with the performance of the best polychloroprene adhesives on the market.