

Success Story

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FEHER MACHINE REDESIGNS PRODUCT: ELIMINATES THE NEED FOR SOLVENTS/ADHESIVES *Feher Machine & Manufacturing, Inc., Sarnia, Ontario*

Feher Machine & Manufacturing, Inc. (Feher Machine) was established in 1979, in Sarnia, by the owner - Steve Feher - and has fourteen fulltime employees. The company manufactures composite hoses, couplings, nipples and ferrules. The facility provides industrial plating and fabricating services to other industries by designing and building conveyors and other equipment. They also rebuild metal surfaces using epoxy and high-velocity spray coatings.

Coupling components manufactured by Feher Machine are used to connect a hose to a pipe or pump. There are various types of couplings, the most common being the internally expanding type. The nipple of the coupling is inserted into the hose and screwed into the inner wire spiral. The outer ferrule (metal sleeve) fits over this connection and epoxy (made of polyesters and esters) is used to fill in gaps and seal. The nipple is then expanded to fit the ferrule tightly, and the excess epoxy is often removed by wiping with a solvent-saturated cloth.

The system of coupling can only be fitted onto the hose once. In the event of a leak, an entire section of hose, including the coupling, is removed and a new coupling attached. This method of repair is expensive and creates unnecessary waste.

GOAL

The goal was to produce a coupling and hose that would secure a competitive advantage in the chemical industry. A coupling was required that would meet the customers' needs and concerns by ensuring: no leaks or spills; no use of epoxies, secondary seals or solvent; and an option for repairs without cutting and throwing away hose (resealing capability).

POLLUTION PREVENTION APPROACH

The crimping press, used to reduce ferrule diameters was redesigned to accommodate the new concept. The new press introduced an additional crimp to the end of the hose where the spiral wire ended, firmly sealing the hose to the coupling. The lip of the ferrule locked into a groove in the nipple, ensuring a tight fit. This unique design eliminated the need for epoxies, secondary seals and cleaning solvent, reduced the chances of acids leaking at the coupling and prevented separation of coupling and hose if over-presurized.

Feher Machine & Manufacturing

Activity:	Pollution prevention; elimination of solvents / adhesives.
Changed:	Product design.
Incentives:	No capital cost required; only adjustments to existing manufacturing equipment.
Benefits:	An environmentally-friendly, lower cost and more reliable product; new business opportunities and a healthier workplace for employees.
Savings:	15-20% savings expected from reduced supplies and waste disposed to landfill.

RESULTS and ADVANTAGES

The patented new coupling had the following pollution prevention features:

- eliminated use of epoxy and its associated potential odour and health concerns
- eliminated use of cleaning solvents (ozone-depleting substances)
- reduced solid waste produced
- product reliability (less chance for leaks)
- reduced risk of leaks and spills

Advantages to Feher Machine include a more reliable product; lower production costs; reduced health risk to employees, and new business opportunities.

By redesigning their product, the small business has achieved the desired improvements while lowering costs and reducing waste. Feher Machine and Manufacturing's success came from the conviction that a better method existed, researching new ideas and the desire to reduce its use of toxic materials.

Adjustments were made to the crimping machine without capital investments. The company expects 15-20% total savings in reduced supplies and reduced solid waste sent to the landfill.

ACKNOWLEDGEMENTS

The Great Lakes Pollution Prevention Centre wishes to acknowledge the contributions of Feher Machine, to this success story.

DISCLAIMER

This material was compiled by the Great Lakes Pollution Prevention Centre Inc. ("GLPPC") for educational and information purposes only. GLPPC in no way is to be held responsible for the actions taken on the basis of the information provided.



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