

Rubber Fab

a Garlock Hygienic Technologies company

Case Study: Cosmetic Manufacturing Plant Smoothbore PTFE Lined Hose



INDUSTRY

Cosmetics – Facial Skin Care

CUSTOMER

A well-known consumer brand offering Beauty, Nutritional, and Cosmetic products in North America and around the World. They offer a wide portfolio, with most products manufactured in-house using flexible production processes ranging from short-run pilot programs all the way up to full-scale large batch campaigns.

BACKGROUND

The customer was using Clear Non-Reinforced PVC hoses in the transfer of liquid (a hot-mask cosmetic product) via AODD Diaphragm Pump through their manufacturing process. Even though the hoses had been specified during plant construction, new products and processes introduced over the years were creating application conditions outside the original specification. These conditions created unexpected and premature failure of the PVC hoses, resulting in leakage and loss of product.

CHALLENGES FACED

The high viscosity of the cosmetic fluid/paste meant that elevated temperatures and pressures were required, above those normally demanded from the processing lines and equipment. While the stainless steel vessels and pipework provided sufficient compatibility for the more extreme conditions, flexible hoses were still required for transfer of media between process vessels and bottling lines and thus presented a potential weak spot in the process. Therefore, the customer recognised that a new solution was required to minimise un-scheduled downtime and reduce their costs for maintenance and clean-up.

OPERATING CONDITIONS

1. Size – 1.5" and 2" ID and 36" through 120" lengths
2. Temperature – 200°F (93°C)
3. Application – Hose Transfer with Tri-Clamp Connections
4. Media – Aqueous Cosmetic Fluid/Paste
5. Pressure – 75 PSI (5.2 bar)

SOLUTION AND BENEFITS

Working closely with both the distributor and end-user, it was easy for Rubber Fab's Technical Sales Team to identify that the wrong product was being used for this application. While PVC is a great hose material for general purpose fluid transfer, the material compatibility is limited when exposed to higher temperatures, pressures, and various chemicals. After reviewing all process and operator requirements, it was suggested that the customer implement Rubber Fab's Smoothbore PTFE Lined Hose with a Convoluted Rubber Cover (RFRTPOC Diversa-Flex). This PTFE lined hose is flexible, lightweight and the cover is highly resistant to abrasion, oils, and chemicals – making it highly durable and resilient. More importantly, this type of hose can easily handle the design temperature and pressure in this application, even allowing for spikes and fluctuations in process conditions. Since implementation, there have been no further failures and the customer has been extremely happy, not only with the performance and service life of this hose but also the reliable technical support and advice they received.

For more information, please visit: www.rubberfab.com