

Rubber Fab

a Garlock Hygienic Technologies company

Case Study: Beverage Filling Machine GYLON BIO-ECO® (Customized)



INDUSTRY

Food & Beverage – PET Bottle Beverage Filling Machine

CUSTOMER

A global and diversified food & beverage processing equipment manufacturer, with multiple locations across the globe.

BACKGROUND

As a supplier of critical process equipment to the world's largest food & beverage manufacturers, performance and reliability are fundamental to this customer's value proposition. However they experienced problems with very short lifetime of gaskets installed in hygienic connections within their PET bottle filling machines. Silicone seals were failing prematurely during both process and cleaning cycles, and were being replaced on a weekly basis - thus impacting machine reliability, maintenance costs and increasing the risk of contamination.

CHALLENGES FACED

Not only does the acidity of most fruit juice cause problems for conventional rubber seals, the greatest stress is in the cleaning and sterilization of the equipment, in this case using PAA (peracetic acid). PAA is an oxidising agent which attacks both natural and synthetic rubbers, and will make the seals brittle and susceptible to mechanical failure.

OPERATING CONDITIONS

1. Media (Product): Fruit Juices - Mainly Orange
2. Media (Cleaning): 0.2% Peracetic Acid @140°F (60°C)
3. Size: Various between DN 25 (1") up to DN 250 (10")
4. Temperature: up to 130°C (266°F)
5. Pressure: Process up to 3 bar, Cleaning up to 7 bar

SOLUTION AND BENEFITS

Through in-depth discussion and collaboration with the customer's engineering team, it was determined that the best solution was to design a customized profile of GYLON BIO-ECO® gaskets for the hygienic screw couplings. This supports the required level of compliance to industry standards, and the modified PTFE structure of the GYLON® Style 3504 material provides compatibility with both chemical and mechanical demands of the application.

The OEM is extremely satisfied that the standard GYLON BIO-ECO® design could be modified to create a truly bespoke and effective sealing solution. The outcome is that the seal reliability has been extended from 5 days to 6 months, and the end-user response has been so positive that they have implemented the product across their facility to enjoy the benefits of more effective and safer process sealing.

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