CASE STUDY

CORZAN® INDUSTRIAL SYSTEMS

Aliaxis

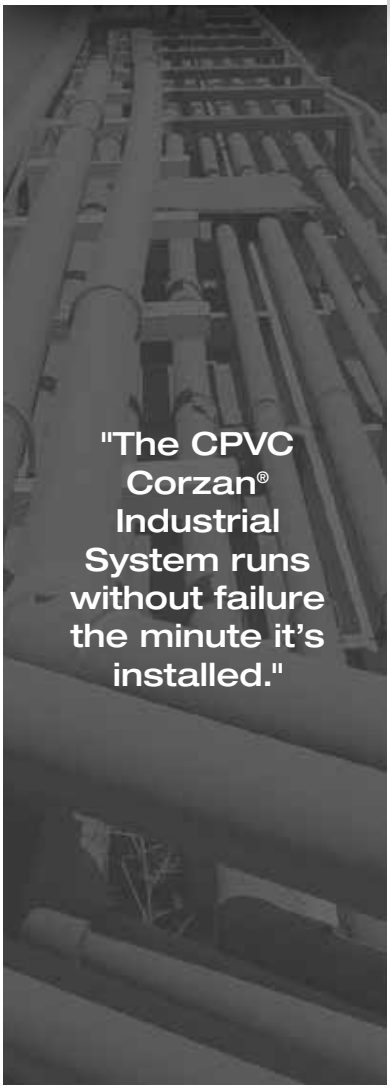
FIP

DE MARNE

Groningen,
The Netherlands
Established: 1895

TYPE OF CONSTRUCTION:
Industrial Food Processing

INSTALLATION TYPE:
Repipe



"The CPVC Corzan® Industrial System runs without failure the minute it's installed."

CORZAN® INDUSTRIAL SYSTEMS MAKING AN IMPACT ON WORLD FOOD INDUSTRY

Since its startup in 1895, De Marne has been a major producer and world exporter of mustard. Named the official mustard supplier to the Royal Family, it's highly regarded by consumers across the globe. Their products are available in all Dutch supermarkets, as well as exported to many countries, including parts of Europe, The United States, Canada, Africa, New Zealand and Australia. The De Marne product presence is also expanding in eastern countries, like Hungary, Czech Republic, Slovakia, Bulgaria, Romania and Poland.

The Challenge
When first in production, De Marne produced and stored mustard through stainless steel 316 piping and tanks. However, the material gradually corroded due to the interference of acids, like vinegar, and the consistent temperature of 70°C. Over time, this led to compromised working conditions, reducing the production and distribution of mustard.

The Solution
Seeking a piping system with better outcomes, De Marne partnered with Akatherm in the Netherlands to install Corzan® CPVC Industrial Systems manufactured by FIP. The Corzan CPVC Industrial System supplied by the two companies of the Aliaxis group, was an excellent choice in maintaining production consistency while preventing corrosion from acids and changing temperatures. The temperature and acid resistant properties of Corzan CPVC represented a major advantage in this project over PVC-U. Another advantage they discovered with choosing Corzan CPVC Industrial Systems is its low coefficient of expansion, which is about 0.6×10^{-6} °C^{-1}. This means that CPVC requires less hangers and compensators compared to PP, whose coefficient is about 1.6×10^{-6} °C^{-1}. In addition, the longer service lifetime and ease of maintenance nearly eliminates production down time.

APPLICATION DETAILS

Vinegar 3%-4%
Salt Concentration not available due to confidentiality of formula.
Pressure 4 to 5 bar maximum
Temperature When the mustard freshly runs through the mills and moves to the buffers, the vinegar temperature is 65°C before cooling down to 40°C.

Materials used in the installations:

Pipe: FIP Corzan CPVC PN16
Fittings: FIP Corzan CPVC PN16
Valves: Ball valves VKD series DN 65 PN16

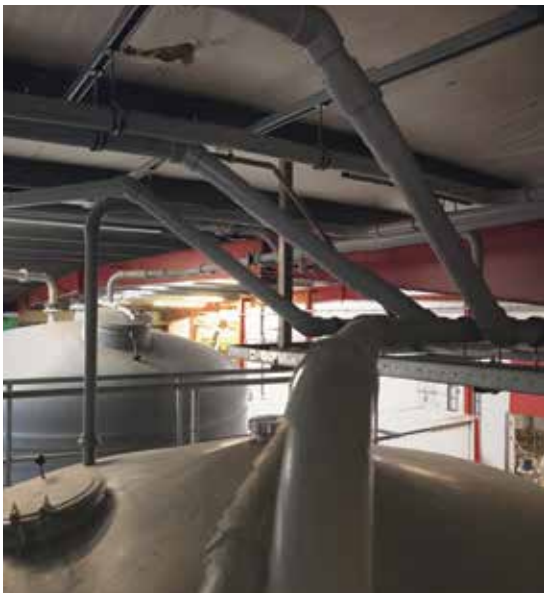
All these factors led to the choice of Corzan CPVC to be the best solution to past problems of corrosion, ultimately increasing production, quality and reliability. PVC piping systems were also considered as an option, but quickly ruled out. The process working temperature can rise up to 70°C, which is above the maximum temperature limits of PVC.

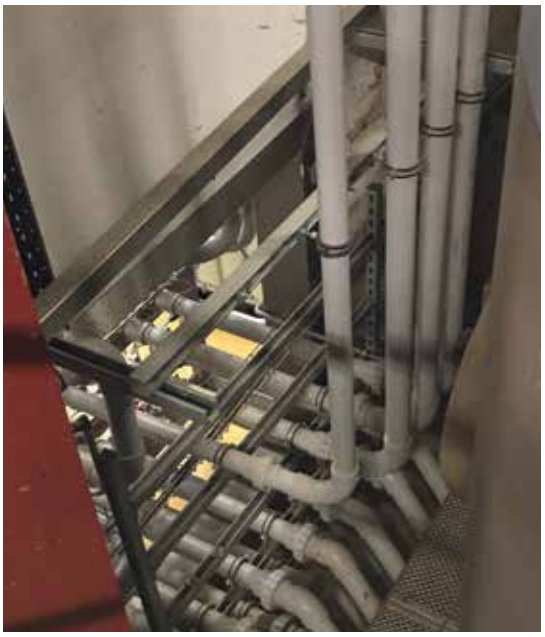
The use of Corzan CPVC turned out to be technically the best solution of the problems encountered in the past. Key factors associated with the application of Corzan CPVC are cost reductions, quality and reliability.

The Result

De Marne is a producer of a variety of mustards and still the official supplier of mustard to the Royal Family.

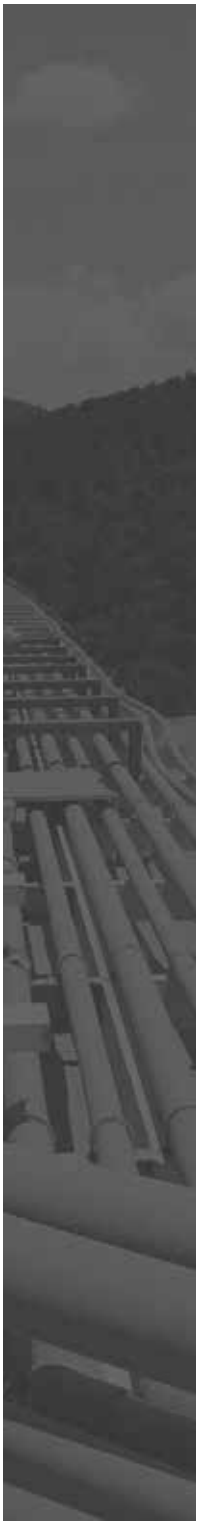
The Corzan piping system was installed in 2004-2005 throughout the whole factory to replace stainless steel. A minimum of 2 km piping has been installed where chemical resistance against vinegar was necessary. 95% of the pipe diameter is 63 and 75 mm and some piping is 100 mm large. The tanks are made of stainless steel or FRP where the mustard is stored or mixed. In the final mustard, the concentration of vinegar is considerably lower and hence represents less of a corrosion problem for the storage tanks.





The Corzan piping is in constant use with vinegar and therefore does not require cleaning. The stainless steel piping however is regularly cleaned, though only at 40°C. Usually the steel system is washed simply with water and occasionally a small amount of vinegar is added to act as a cleaning agent.

Jan Hingstman, the Technical Service Manager at De Marne's production site in Groningen, confirmed that during the past 12 to 13 years, since its original installation in 2004 / 2005, no failure with Corzan piping has occurred. The only amendment to the existing Corzan piping system has been undertaken in 2007 / 2008 to increase the pipe diameter to accommodate for a larger product flow rate inside the pipe. To be able to use Corzan CPVC industrial systems, De Marne required potable water approvals and confirmation of compliance with the EU regulation on migration limits.



CORZAN® INDUSTRIAL SYSTEMS

Aliaxis

FIP

Corzan® CPVC
Technical Support & Marketing Department
9911 Brecksville Road
Cleveland, OH 44141-3201 USA
+1 (216) 447-7397
Corzan@Lubrizol.com
www.corzan.com

17-63854

Printed in U.S.A.
October 2017