CASE STUDY

EPDM Insulation is FDA Compliant

Finding an easy to install, FDA compliant for non-contact use insulation solution for a heat exchanger system was essential for installers at ANEKO and not just any insulation would meet the challenge. ArmaFlex® UT insulation was selected for a project at a Coca-Cola bottling facility because it is a UL 94 recognized, flexible, closed-cell, high-temperature insulation that provides low thermal conductivity, excellent fire and smoke behavior, and protection against heat flow and water vapor diffusion. **Armacell in action.**

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MAKING A DIFFERENCE AROUND THE WORLD

High Temperature Insulation for Energy Efficiency

ArmaFlex UT

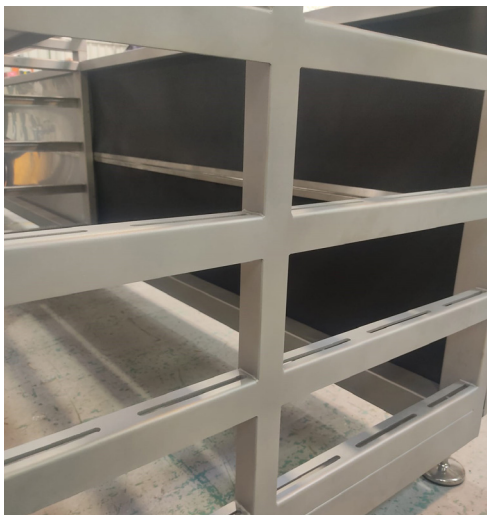
Project:
Insulate a stainless-steel tubular heat exchanger on a skid in an efficient, ready-to-install system that is compliant with the U.S. Food and Drug Administration (FDA) regulations for non-contact applications.

Location:
Monterrey, Mexico

Engineering Firm:
ANEKO LLC

Challenge:
Control temperatures and energy use of an ANEKO hot filling pasteurization system which included a tubular heat exchanger by using high-temperature insulation that is appropriate for the food and beverage industry.

Solution:
By using ArmaFlex UT insulation in a continuous roll and tube form, installers were able to insulate a skid that housed the heat exchanger system offsite at an ANEKO location for easy installation at the customer without production interruptions.



COLD BEVERAGES AND HIGH TEMPERATURE HEAT EXCHANGERS

Making delicious beverages is a craft that takes time and the most up-to-date and safe equipment. Ingredients, recipes, processes, facilities, employees, and especially machinery must all be reliable and in safe working order. The Food and Drug Administration (FDA) is responsible for protecting the public by ensuring the health, safety, efficacy, and security of human and veterinary drugs, biological products, medical devices, food supply, cosmetics, and any products that emit radiation. FDA regulations must be followed in the Americas and Coca-Cola's commitment to safely processing beverages further strengthened the requirement for compliant materials when the need arose for a new tubular heat exchanger to be installed at a Coca-Cola bottler processing facility in Monterrey, Mexico.

ANEKO, a leading engineering company focused on innovative equipment design in the food, beverage, and dairy products industry, was selected for this project

DID YOU KNOW?

ANEKO's systems have lines of 72,000 bph (bottles per hour) meaning their equipment can produce 20 bottles of beverages per second! Cheers!

to be the engineering installation team and equipment manufacturer. The team had a challenge for this installation of a hot filling pasteurizer that included a stainless-steel tubular heat exchanger due to energy efficiency requirements and the need for temperature control during the hot filling pasteurization process. Hot filling uses heat to pasteurize a product by heating liquid in piping to a high temperature and then injecting that liquid into vessels like bottles at the same high temperature to sterilize the interior contents of the primary packaging. This process of sterilizing the product, inside of a container, and the closure ensures the safety of the product and prolongs its shelf life.

Thermibev HF, ANEKO's premium continuous hot filling pasteurizer capable of processing up to 75 gpm of liquid, has a tubular heat exchanger as one of its main components. This system is mounted on a skid that can be fully automatic, semi-automatic or manual, and can be designed to be integrated into any processing unit, making it the ideal choice for beverage processing needs. Now that the proper equipment was selected, all that was needed was for ANEKO to identify an FDA compliant for non-contact, energy efficient high-temperature EPDM insulation that controlled and ensured low temperature differential. Heat loss control, and in this case, the control of steam consumption, was a critical factor. This unique insulation solution also had to be prefabricated and easily assembled offsite as a complete unit to not disrupt any facility operations or the workers surrounding the machinery.

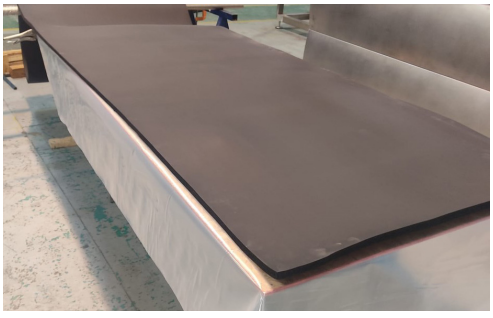
Contractors and Engineers at ANEKO knew of only one high-temperature insulation solution that met all these requirements and was appropriate for the food and beverage industry – Armacell's ArmaFlex UT. ArmaFlex UT tube and roll insulation is a UL 94 recognized, flexible EPDM thermal high-temperature insulation with a closed-cell structure that provides low thermal conductivity, excellent fire and smoke behavior, low temperature flexibility and excellent protection against heat flow and water vapor diffusion. ArmaFlex UT insulation performs on a broad range of metal pipes and tubing used on process piping, refrigeration, solar applications, hot gas and dual temperature piping, and low-pressure steam lines.

FUN FACT

Did you know that a similar system to a heat exchanger can be found in whales?

That's right, arteries carrying warm blood get crossed and exchange heat with veins carrying cold blood away resulting in a "countercurrent" heat exchanger in a whale's skin that reduces overall heat loss in cold waters!

ANEKO had the ability to quickly create an entire skid assembly encasing the heat exchanger unit and insulating the system where piping and electrical connections were the only needed task to be completed at the bottling plant. The prefabricated and fully insulated system covered the stainless-steel exchanger easily due to the roll format for the walls and the tube forms of ArmaFlex UT for piping. The roll format can easily adapt to any surface needed and can be cut to size for fittings, elbows, and joins. With the addition of the high temperature contact adhesive ArmaFlex® HT 625, there was no need for wires or ties to secure the insulation, giving the project a very clean and seamless look. "With the roll, installers were able to cover any surface or shape required, so the outcome was a well-insulated piece of machinery that looked very good." remarked Hernan Marino, CEO of ANEKO. Another important benefit of the skid housing using ArmaFlex UT was that hot piping was covered with insulation providing added protection for operators at the facility, enhancing the safety of surrounding workers. The final installation and completion of this project resulted in an energy savings from temperature control and less steam consumption, improved worker protection, and a nice-looking piece of equipment to safely make refreshing beverages for the world. ■



- // Elastomeric tube insulation for higher temperatures up to 300°F
- // Flame and Smoke Rated: Meets 25/50 flame and smoke index of ASTM E 84
- // Helps protect Indoor Air Quality: Fiber-free, formaldehyde-free, low VOC
- // Closed-cell structure naturally resists growth of mold
- // Remains flexible at temperatures up to +300°F (+150°C)
- // GreenGuard Gold Certified

ArmaFlex | ArmaFlex UT Heat Exchanger | Case Study | 032023 | NA | EN-A

ABOUT ARMACELL

As the inventor of flexible foam for equipment insulation and a leading provider of engineered foams, Armacell develops innovative and safe thermal and mechanical solutions that create sustainable value for its customers. Armacell's products significantly contribute to global energy efficiency making a difference around the world every day. With more than 3,300 employees and 27 production plants in 19 countries, the company operates two main businesses, Advanced Insulation and Engineered Foams. Armacell focuses on insulation materials for technical equipment, high-performance foams for acoustic and lightweight applications, recycled PET products, next-generation aerogel technology and passive fire protection systems.

For more information, please visit:
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