ContenO performs extreme climate testing on containerised water bottling factory

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ContenO wanted to ensure the quality and reliability of a containerised water bottling factory by subjecting it to extreme weather condition tests. This would help to identify any weaknesses or vulnerabilities, ensure that the factory is able to operate efficiently and maintain its performance even in the most challenging environments. The tests were performed successfully in Sirris's Large Climatic Chamber.

ContenO is a Belgian leading manufacturer of smart bottling factories. Its engineers provide state-of-the-art equipment, services and complete solutions for packaging liquids, foods, chemical products, home and personal care products. The containerised bottling factory is commercialized by ContenO throughout the world.

For an important French Army project, the company wanted to ensure the quality and reliability of a containerised water bottling factory, which is designed to purify water, produce PET bottles, fill them with drinking water and close them. This by subjecting it to extreme weather condition tests, which would help to identify weaknesses or vulnerabilities, allowing for improvements to be made to the design and construction of the water bottling container. The tests could be done in Sirris's Large Climatic Chamber.

Extreme testing

The 20ft container with a bottling factory underwent a 3-day/night climatic test to assess its performance under various extreme weather conditions. The aim of the test was to determine the robustness and durability of the containerised bottling factory. The climatic conditions during the test were carefully controlled and followed a predefined profile between -35 °C and +73 °C in storage conditions and between -10 °C and +50 °C in operation mode. To simulate the effects of solar radiation in desert heat, an IR array of 950 W/m2 was used. The test is divided into two phases: low ambient temperature survival and high ambient temperature performance. The objective was to ensure that the factory is able to operate efficiently and maintain its performance even in the most challenging environments.

Safety first!

The bottles filled during the test had to be manually evacuated from the climatic chamber. This was done by pushing them manually through a PVC tube to the outside of the climatic chamber, a clever solution which dramatically reduced the physical exertion on the personnel handling the bottles. Additionally, the person inside the climatic chamber was being replaced every 15 minutes, to prevent discomfort caused by extreme temperatures. In this case the high ambient temperature phase combined with infrared heat is the most challenging part of the test, and personnel safety is of the utmost importance.

Overall, the climatic test was a crucial step in ensuring the quality and reliability of the containerized bottling factory for military purposes. By subjecting the factory to extreme climate conditions, the test helped to identify any weaknesses or vulnerabilities that may exist, allowing ContenO to make improvements to the design and construction of the bottling factory. This, in turn, helps to ensure that the factory is able to operate efficiently and effectively under a wide range of environmental conditions, providing a reliable and high-quality product for customers.

This case is one of twenty inspiring examples of how technological innovation can be put into practice in industry, included in our Annual Report 2022. Curious for more? Then be sure to read the other cases in our Annual Report, let them inspire you and discover what technological innovation can mean for you!

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