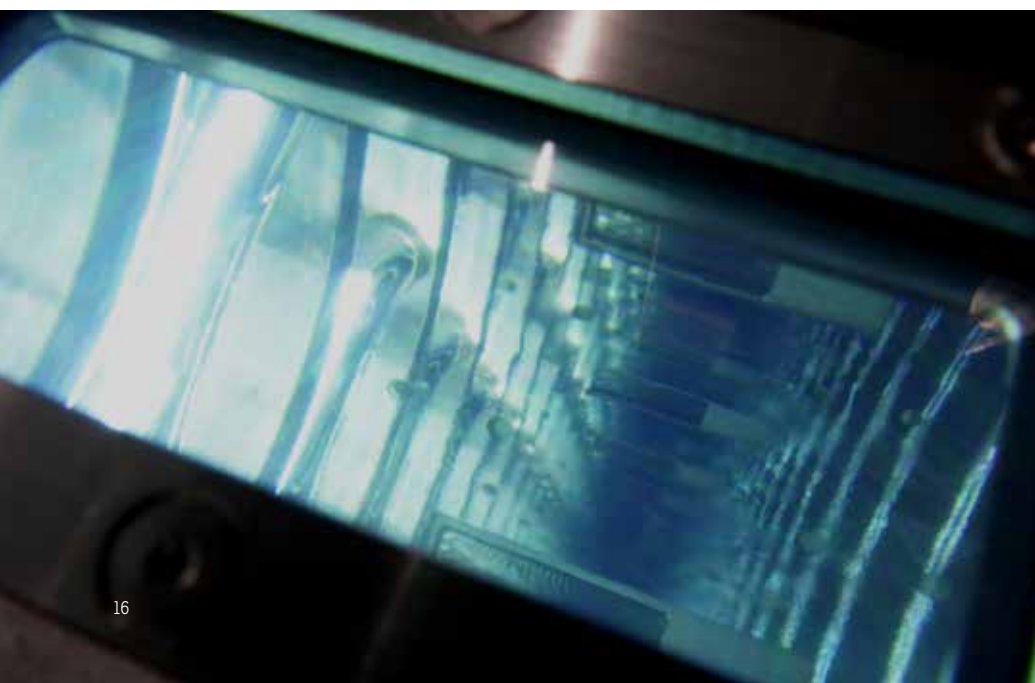


REDUCING CO₂ EMISSIONS WITH LATEST ASEPTIC FILLING INNOVATION

DNP LAUNCHES ENVIRONMENTALLY FRIENDLY ASEPTIC FILLING SYSTEM FOR PET BOTTLES THAT DECREASES CO₂ EMISSIONS BY UP TO 40%, WHILE ACHIEVING HIGH STERILITY

Aseptic Systems Co. Ltd. (APS), a subsidiary of Dai Nippon Printing (DNP) has recently introduced a new Aseptic Filling System to help beverage manufacturers cut CO₂ emissions, reduce chemical usage and still provides a trustworthy solution for beverage producers.



APS, who are responsible for the development, sales and maintenance services of Aseptic Filling Systems, have released their latest technology; GREEN ASEPTIC™. A new system that significantly reduces CO₂ emissions from the liquid processing equipment used in PET Bottle Aseptic Filling Systems to fill beverages in a sterile environment.

This new system can reduce energy consumption by approximately 80% (based on a dilution ratio of five) by replacing a portion of the ultra-high temperature (UHT) sterilisation of beverages with a non-thermal sterilisation system that combines a sterilising filter and a medium pressure ultraviolet (UV) lamp. Additionally, by adopting a two-step sterilisation system – which sterilises the preform before it is moulded, followed by forming the bottle shape with sterile air – achieves a significant reduction in the amount of chemicals used for bottle sterilisation. By combining these two systems, CO₂ emissions are reduced by approximately 40%.

With a growing demand for soft drinks globally, the use PET bottles is expected to increase. With this expected market expansion, beverage manufacturers are also accelerating their efforts to be environmentally conscious and are facing the challenge of decarbonising the PET bottled beverage manufacturing processes and the filling of soft drinks. In response to such challenges, APS has developed a proprietary non-thermal sterilisation system that focuses on the proportion of water included in soft drinks.

To date, the risk that filterable bacteria may pass through the filters has limited the use

of sterilising filters for sterilising beverages. In many cases, large amounts of energy have been required by heating water to approximately 140°C to achieve sterilisation. APS's solution is to combine UV lamps that eliminates even the smallest microbes with a sterilising filtration filter. This method makes it possible to produce beverages of the same quality as those produced by conventional thermal sterilisation, without the need to heat the main component of the beverage – water.

MAIN BENEFITS

■ Non-thermal sterilisation system that achieves energy savings

In conventional PET Bottle Aseptic Filling Systems, a large volume of beverages are produced by diluting the product solution, or syrup, with water which has been sterilised with UHT. Water sterilised by UHT heat is also used to wash the containers. APS succeeded in reducing the energy used in liquid treatment by approximately 80% by sterilising water for both diluting and cleaning, using UV lamps and sterilising filters, using much less energy than conventional thermal sterilisation.

■ Two-step sterilisation system reduces chemical usage and required installation space

The new aseptic filling system for PET bottles sterilises in two steps, once before blow moulding, at the preform stage, and secondly during blow moulding into the bottle shape. Because the surface area of the preform is much smaller than that of a fully blown bottle, the two-step sterilisation process reduces the amount of chemicals used by approximately 40%. In addition, by making the sterilisation equipment more compact, the installation area can be reduced by approximately 30%. This in turn allows beverage manufacturers to make more effective use of limited space in their factories.

■ GREEN ASEPTIC™ selected as Advanced Equipment and System eligible for energy conservation subsidies from the Japanese Ministry of Economy, Trade and Industry's Agency for Natural Resources and Energy

The newly developed non-thermal sterilisation system and two-step sterilisation system have been proven to exhibit a high energy-saving performance. These two systems are eligible to receive subsidies for advanced equipment and systems under the FY2025 supplementary budget of the Energy Saving Investment Promotion and Demand Structure Transformation Support Project run by the Sustainable Open Innovation Initiative.



APS have a network of successful installations worldwide and is a leading supplier to the Japanese soft drinks market. This newly developed system is available to all beverage manufacturers, not only in Japan but also in China, Southeast Asia and other regions. We will contribute to the provision of safer and more reliable soft drinks and cut CO₂ emissions.

For more information on the Aseptic Filling System for PET bottles, please visit:

🌐 <https://www.global.dnp/group/aseptic-systems/>