



Mineral water bottling

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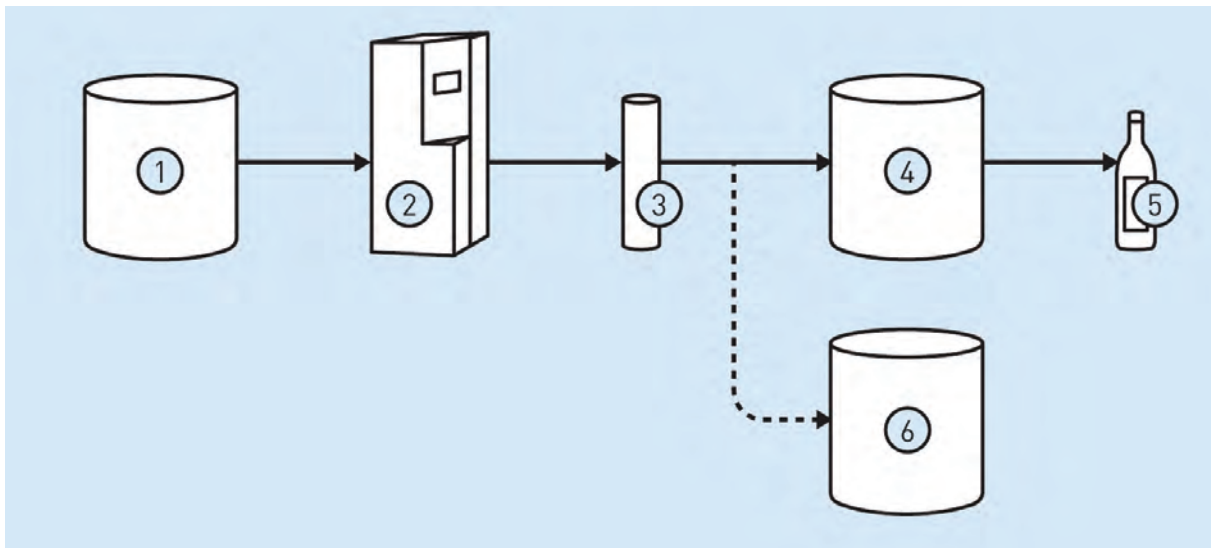
ENGINEERING YOUR SUCCESS.

Blanketing drinking water

Water is the most important liquid in the world. Without water, there would be no life, at least not the way we know it.

It is a fact that water makes up about 60% to 75% of the human body. If we lose about 3% of our total body water we will feel tired and a 10% loss is seriously life threatening. Everybody in the world must drink water, however it depends on your climate, diet, and body whether you should drink about 1.5 to 3 litres of water each day. All over the world, bottled water is one of the most popular drinks.

Blanketing drinking water is done by putting a “blanket” of nitrogen over the product. The water is stored in a storage tank and the headspace of this tank is filled with nitrogen to displace atmospheric air and thus oxygen to avoid oxidation.



Process diagram

1. Air receiver
2. Nitrogen generator
3. Nitrogen storage tank
4. Water storage tank
5. Bottled water
6. Ethanol storage tank

Specification

Purity 95 % -98%

Nitrogen demand Maximum water flow + 25%

The purity for blanketing drinking water used in our case study (98%) is chosen based on recommendation of our Parker sales manager. As the use of nitrogen with this purity is to the complete satisfaction of the customer we advise this purity for this particular application.



Product
 NitroFlow Basic range
 NitroFlow range
 NitroSource

Case study

Danone, Brecon Hills, South Wales, UK Producing flavoured waters - low sugar alternative to soft drinks, part of the Danone Group.

Danone is the leader in the beverage industry with worldwide brands such as Volvic and Evian along with UK brands including Green Valley as well as a new range of flavored beverages under the brand of Shape aimed at reinforcing the healthy lifestyle ethos which Danone promotes. The Brecon Hills manufacturing facility produces 18,000 bottles per hour, with a six man team operating the machinery per shift. The water storage vessels at this site contain the water used for the final flavoured water drinks that this company produces. To prevent bug growth in these vessels they are blanketed with nitrogen.

Until the NitroSource was installed at the site the company purchased considerable volumes of liquid nitrogen.

The plant engineer explained that although the nitrogen supplied was of high quality, there was always the potential for a disruption in deliveries. With their own on-site nitrogen generating system this problem is now history.

Of even greater importance to the customer was the reduction of operating costs without affecting the standard of service or range of drinks that they produced. The NitroSource which Parker provided has a payback of only 12 months reducing cost per m3 nitrogen with over 95%. The Parker calculation program was used to show the plant owner that although their current supply looked cheap, taking into account all cost compared to a Parker generator, was a waste of money.

Once the system was installed, Danone was able to use the system from day one. Additionally the facility to expand the output capacity means they can easily increase their production volumes as and when required.

Besides blanketing the water tanks, the nitrogen was also used during the bottle filling. And next to that a very interesting detail is that at this particular site the nitrogen was also used to blanket a chemical, Ethanol.

Ethanol use at this plant is for 2 applications. The first is raw/diluted Ethanol for sanitising purposes which is used regardless of what drink is being produced. The second application is the addition of Ethanol to flavourings which is done as a preservative by the supplier (otherwise the flavour would not last a couple of days). This evaporates or is flashed off during the manufacturing process of bottling.

The UK based distributor that in the end got the NitroSource order for this plant, was initially their supplier of compressed air and process filters.

Before using nitrogen from a generator the customer used liquid nitrogen from a storage tank. By changing to a Parker nitrogen generator they no longer depend on an external supplier with risk of delivery disruption and no longer stocking and administrative actions are involved. They always have the right quality of nitrogen available from an on-site generator.

References soft drinks

Cobega (Coca-cola)	Spain
Calypso Soft Drinks	UK
Aquatec Perrier	France
Mineralka s.r.o.	Slovakia
Franschoek	Water South Africa

Who to contact

The list of bottled water manufacturers is enormous. There are several sites that provide you with a lot of information on the different manufacturers. You can check different search engines and type the words "bottled water", "mineral water", "bottling plant", "flavoured water" or "spring water".

Another site with over 3000 different names of mineral water is: www.mineralwaters.org

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