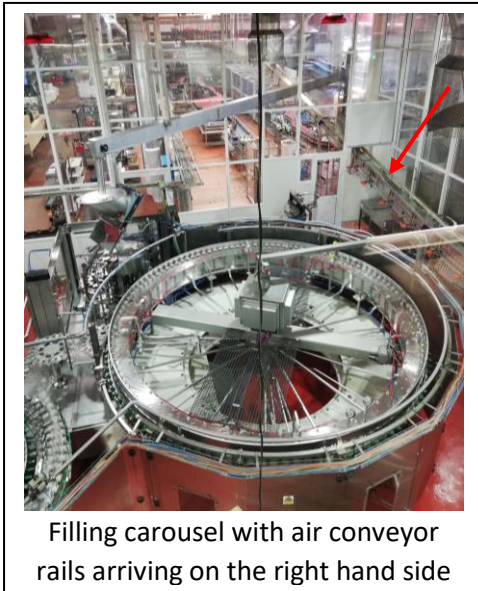


FOOD & BEVERAGE INDUSTRY

APPLICATION REPORT LARGE BOTTLING COMPANY, ZAGREB, CROATIA

REQUIREMENTS

The production process at a large bottling factory in Zagreb starts with producing PET bottles. The empty PET bottles are transported via hundreds of meters of air conveyor rails, and filled with different beverages and soft drinks at large filling carousels in the clean room. The carousels are



capable of filling up to 46.000 bottles an hour. The full bottles are encapsulated and transported on to the packaging and paletting areas, from where they are trucked to the customers.

Cleaning of the machinery is done several times a day when production switches from one beverage to another using CIP processes. Also, there is ad hoc cleaning when a bottles breaks or spills occur which happens occasionally. Finally, there is a quarterly schedule for maintenance and cleaning where all machines are cleaned top to bottom. Cleaning of the carousels requires disinfection of sensible parts with alkaline cleaners on a daily basis.

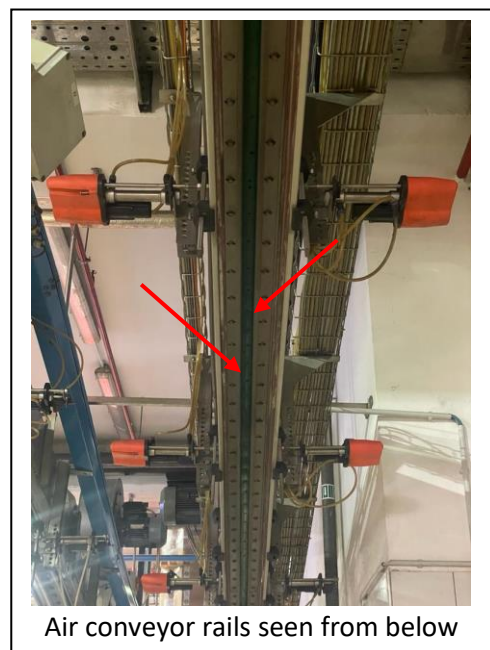
Cleaning the **air conveyor rails** posed a particular problem: Empty PET bottles are held between two rails by the small ring under the screw cap and propelled by air blowers. The

rails themselves are slippery and assure smooth sliding when clean. However, minute amounts of sugar in **tiny droplets in the air are constantly deposited** on the rails, and over time make the rails sticky. This results in a stick-slip effect, and after some time the bottle necks get stuck, the bottles smash into each other, **and the entire production process is disrupted**. This resulted in substantial standstill costs.

PREVIOUS TECHNIQUE

Keeping the air conveyor rails clean was therefore a key challenge. These rails are generally difficult to access because they are high up or pass over other machinery, which made the cleaning rather hazardous. They used to be cleaned with cleaning foams which were later washed off with high pressure. **This was labour intensive and tedious, involved significant amounts of chemistry, and consumed 1000 litres for the clean room alone.** In order to apply the chemical foam, extension hoses were needed that had to be pulled for over 30m and crossed the entire production hall. Worst, **conveyor belts, machinery and the floor were largely inundated** with a mix of water and chemistry.

Tests with other methods, in particular hoses with water outlets every few meters on the rails were wasteful and expensive, not very effective, and also resulted in significant flooding.



OUR SOLUTION

The solution was finally presented by VesonPlast, the Croatian partner of **ph-cleantec**: **Sugar and caramel on the rails are easily washed off** with the ph-cleantec 1500 SRE units, access to the rails is no problem using a 10m hose and a push & pull lance, and flooding is minimal given the generally very low water consumption of the units.

Plus, no chemicals are needed as the devices use 95°C hot water which easily dissolves sugar and caramel.

As a result, now

- the work proceeds significantly faster,
- hazardous situations are avoided,
- no chemistry is necessary, and
- water consumption is reduced from 1000 to 120 litres.

A particular advantage is the mobility of the units: Employees can easily follow the air conveyor rails with the ph-cleantec units. The units can be operated independently of water supplies given their 60 litre tanks. **As a result, work is fast and easy, there are no more hoses stretching across the production hall as, and there are no more inundations.**

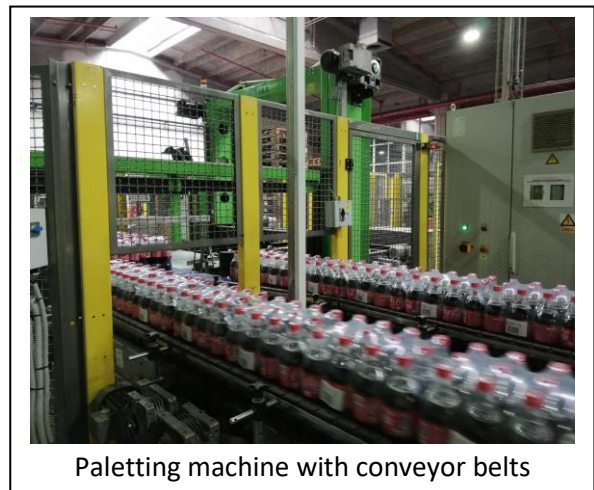


Hose reels were used to apply foams to the air conveyor rails, with hoses spanning across the hall to reach the respective air conveyor rails

After an initial purchase for cleaning the air conveyor rails, the client now also use ph-cleantec units for a variety of other applications, in particular:

- cleaning the **entire palettiser units**
- cleaning the **labelling machines** and the area where the labels are applied in particular
- cleaning the filters of the air blowers
- cleaning upper conveyor belts when conveyor belts cross machinery or other conveyor belts below, or when two conveyor belts lie above each other
- cleaning **cables** running above the air conveyors or the conveyor belts
- importantly, if bigger spills occur and production faces standstill then alkaline cleaners are not sufficient and **the ph-cleantec unit is used for cleaning and disinfecting (!) the filling carousels.**

Tests with biological swabs showed that after cleaning with 95°C, no germs were left. This saves time, avoids the use of chemicals, and – by far the biggest benefit - avoids a standstill of the entire production line.



Palettising machine with conveyor belts

YOUR ADVANTAGES

- Efficiency/quality: Fast and efficient cleaning of sugar, caramel and other contaminations such as dust, oil, and grease
- Hard-to-access areas are easy to reach with proper accessories, reducing work time and eliminating hazardous situations
- Substantial resource savings: no more chemistry, 120 litres instead of 1000 litres of water
- Disinfecting effect as cleaning with 95°C destroys germs such bacteria, yeast, and fungi
- Mobility: Devices are mobile and largely autonomous; the device can easily follow the rails and cleaning is no problem; no 30m hoses spanning across the entire production hall
- Significantly lower risk of production line standstill
- Versatility: Devices can be used in a variety of applications
- Substantial cost and resource savings resulting from all of the above

