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New process increases surface hardening of stainless steel by a factor of 10

At Drinktec 2017, Expanite A/S introduces a new process to increase surface hardening of stainless steel by a factor of 10. At the same time, the solution improves corrosion resistance and makes it possible for beverage manufacturers to reduce downtime and costs.

To ensure food safety in the beverage processing industry, capping and filling machines have stainless steel surfaces on areas in contact with beverages or liquid foods. However, the relatively soft surface of stainless steels is prone to excessive wear and galling resulting in damaged equipment.

“For example, when a capping machine puts caps onto bottles many times per hour, the stainless-steel parts wear. Thus, stainless steel surfaces need hardening and until now, this process has had the disadvantage of losing the corrosion resistance,” explains Thomas Abel Sandholdt, CEO at Expanite A/S, and continues:

“With our new process, it is possible to increase the surface hardness of stainless steels by a factor of 10 and reduce abrasive wear by more than 160 percent, while maintaining or even improving corrosion resistance.”

Day-to-day delivery

With Expanite’s solution, beverage manufacturers can expect their processing equipment returned within days, which is previously unseen within surface hardening on stainless steel.

“We harden the stainless steel equipment and return it to the manufacturers with extremely short lead times, in principle day-to-day. This way, we not only solve a technical problem within the industry but also the logistics,” says Thomas Abel Sandholdt.

Prolongs equipment and reduces costs

The Expanite technology is customised to beverage manufacturers’ requirements in terms of abrasion, wear, corrosion and scratch resistance. The treatment prolongs the life of equipment like screws, valves, mixers or pumps up to a thousand times.

“The longer life expectancy on equipment enables planned service. Every processing equipment needs maintenance but it is preferable for manufacturers to schedule check-ups. Accordingly, the hardening treatment allows beverage manufacturers to decrease downtime and thereby reduce costs,” says Thomas Abel Sandholdt.

Photo text: At Drinktec 2017, Expanite A/S introduces a new process to increase the surface hardness of stainless steel equipment by a factor of 10 while improving corrosion resistance.

About Expanite A/S

- Expanite was founded in 2010 by three scientists from The Technical University of Denmark and has treatment facilities located in Hillerød, Denmark, Twinsburg, Ohio/USA and in Stuttgart, Germany.
- The Expanite treatment effectively removes the oxide film covering stainless steels. This allows controlled incorporation of carbon and nitrogen atoms in the underlying metal. The hardened layer is characterized by an expansion of the material structure.
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