Case Study

Norit Haffmans new DO technology – Successfully tested and applied by Coca Cola Enterprise-Europe.

A company with a challenge

Coca Cola Enterprise-Europe (CCE – Europe) has production facilities in the United Kingdom, France, the Netherlands and Belgium. In France CCE has five productions plants.

At various locations and on both old and new filling lines the company was facing the challenge of product foaming during the filling process. Since this phenomenon was causing much product losses and increased the uncertainty of the product quality, CCE –Europe investigated the possible causes.

It was discovered that oxygen (O_2) was one possible cause of product foaming. "Another reason for CCE - Europe to be interested in oxygen, is the new trend in soft drinks production," says Stéphane Heckly, Process Technology Manager of CCE – Europe. "More and more soft drinks are produced with natural ingredients, which are oxidation sensitive. Close monitoring of the oxygen level in the entire production process to ensure the quality stability of the product is more important than ever."

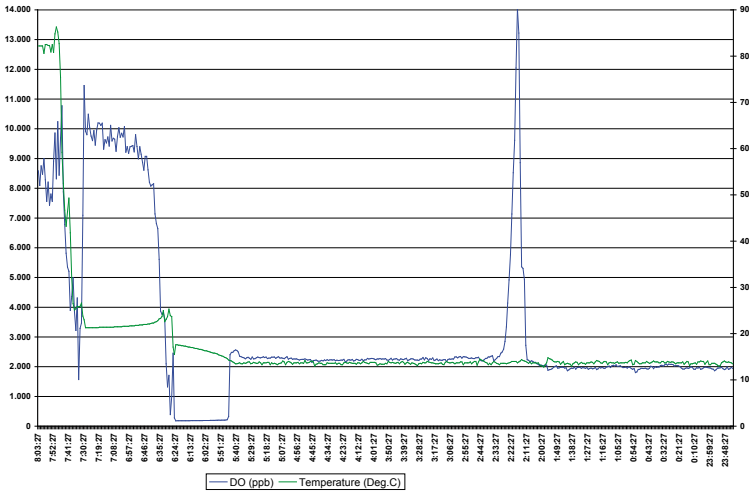
CCE - Europe had some classic instruments to measure dissolved oxygen (DO) in-line, but was not happy with the speed, accuracy and reliability of the existing instruments. Therefore, a decision was made to look into the Norit Haffmans DO instruments that are based on optical measurement technology.

The trial

After a detailed study of the instruments available from Norit Haffmans, CCE – Europe decided to test the OGM to measure dissolved O_2 in-line and the o-DGM to measure O_2 throughout the production line on syrup, water and finished products. Since DO had never been a focus quality control, the exact amount of O_2 in the specific Coca Cola products was not known. The first trial consisted of just measuring the DO in-line for all types of Coca Cola products, in order to learn the differences in O_2 content between the various products. This trial was conducted by Didier Venet, Technical Project Supervisor of CCE – France (Grigny). The results of the trial were collected over a period of three months and showed that different products had different DO levels and that the O_2 concentrations were linked to the foaming of the products.

Furthermore, during this trial the portable DO meter (o-DGM) was used to identify the location of the O_2 pick-up in the process. From the three possible locations where O_2 could enter the production process - syrup, water and process - the water was identified as the most important O_2 source in the plant where the trial was conducted. "The o-DGM provided very good and consistent results for non-carbonated products," Venet concludes.

Product 1 - Site A



DO Technology

Norit Haffmans
leading in purification

Case Study

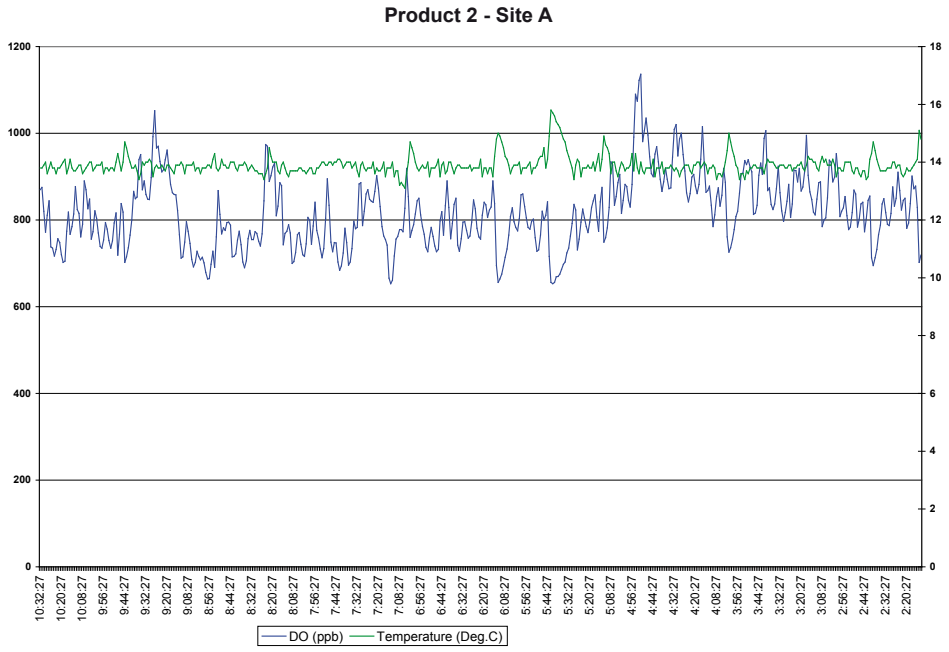
Meeting the challenge

For measuring O_2 in carbonated products Norit Haffmans recommended that CCE – Europe to do a second trial with the c-DGM (CO_2/O_2 Gehaltemeter portable). CCE - Europe ran the second trial at another production plant in Paris, where new filling lines had just been installed and the foaming problem was on top of their priority list. Results were collected with the c-DGM for a period of about two months and the stable values again provided a link, between the concentration of DO and the foaming of the products.

Besides the measurement of DO, the c-DGM provided other benefits such as measuring the dissolved CO_2 in the bottle. While, in the past, it took the plant up to three days to identify the cause of the O_2, with c-DGM it takes only about 10 minutes to have the answer. The OGM also proved valuable. "With the OGM, we finally found a reliable and fast instrument to help us better manage our production process and prevent product losses," says Mr. David Shank, Quality Coordinator at CCE – UK (Wakefield). "We appreciate the support and service provided by Norit Haffmans in France and the UK."

Conclusion

More and more soft drinks producers are switching to natural ingredients in response to sustainability and health concerns, which results in a higher O_2 sensitivity and improve tastestability of the soft drink. With Norit Haffmans' O_2 technology; based on optical measurement CCE – Europe was able to identify O_2 as the cause of product foaming. Furthermore, with the portable O_2 meter, the water de-aeration process was identified as the major O_2 source in the production process. The o-DGM was identified as the ideal instrument for non-carbonated beverages while the c-DGM was selected for carbonated products. The c-DGM has proved itself as a perfect tool for trouble shooting and O_2 monitoring in the soft drinks production and its additional benefit with its capability to be used for filled bottle is an indispensable extra no carbonated soft drinks producer wants to miss in the process.



Haffmans BV reserves the right to make changes in the technical specifications at any time.

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