

TCA SMART SENSOR FOR PROCESS CONTROL IN CORK INDUSTRY

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Keywords: TCA, cork, smart sensors; process control

INTRODUCTION

Cork taint in wine, described as “moldy-musty” aroma is commonly related to the chloroanisole family of compounds. 2,4,6-Trichloroanisole (TCA) is considered the major contributor to the sensory deviations related to cork due to its particularly low sensory threshold [1-3].

Methods for TCA analysis used, nowadays, in quality control (ISO 20752:2014 (E) [4] and OIV-MA-AS315-16 [5]) are very time consuming, destructive, and also incomplete since a limited number of samples per lot are analysed. To guarantee 100 % TCA taint free corks, Cork Supply developed in the past an industrial solution for TCA real time and non-destructive individual inspection, the DS100+ [6].

TCA is present along all the productive process, since forest to final cork, and the earlier it is detected in the process and segregated, the lower is its incidence on the final product.

In order to monitor this critical parameter, we develop a new system, a Smart Sensor a key element of Cork Supply Digital Transformation. This new process control unit is a component of a larger end-to-end (E2E) platform aiming to collect data from a sensor, processes it, and distributes information enabling, traceability and data-driven decision making to quality aspects. Furthermore, making use of machine learning eliminates the need of qualified personnel to acquire and process data.

The Smart Sensor is capable to monitor TCA at different steps of cork manufacturing throughout the value chain, not requiring a trained analyst, compatible with industrial environments, smart, autonomous and reliable.

In this work we aim to present the results we collect from forest to final cork with our new industrial system and show the performance of this kind of devices towards the analysis of different cork materials

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