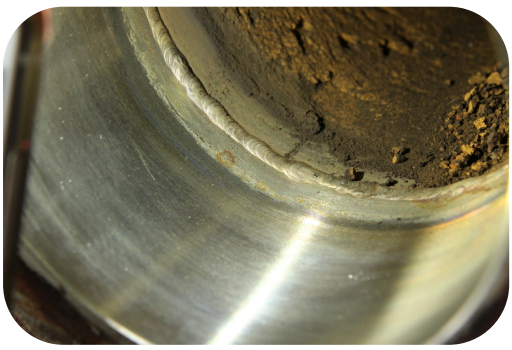
Cobra Consultancy calls in Microbial Analysis to investigate corrosion problems in wine tanks and heat exchangers

Cobra Consultancy has asked Microbial Analysis to investigate the involvement of MIC (microbiologically induced corrosion) in corrosion in stainless steel wine tanks and heat exchangers.



Leakage in wine tanks

At a French winery, stainless steel 304 tanks have been installed in which the wine is stored. The wine is kept at the correct temperature using cooling fins, ensuring that the yeasts develop the desired aromas and flavours in the wine.

Shortly after the tanks were made operational, leaks were discovered in 27 of the 54 tanks. The corrosion rate and observed characteristics, such as discolouration and dark corrosion near the weld, strongly indicated MIC. To

investigate this, we took a surface sample from the inside of the wine tanks and performed a qPCR analysis. This revealed a high concentration of microorganisms, including sulphur-oxidising bacteria.

MIC caused by stagnant water

A high concentration of microorganisms on the inner surface of wine tanks indicates the presence of a biofilm. Additionally, sulphur-oxidising bacteria are known to cause MIC. The analysis results indicate that MIC was involved in the damage.

To prevent further damage to the wine tanks, an investigation was conducted to determine the cause of the MIC. Enquiries revealed that the manufacturer had not completely dried the tanks after performing a pressure test. Consequently, a layer of water remained at the bottom of the tanks for several months while

they were stored outside in the French sun.
These conditions are ideal for bacterial growth,
including MIC bacteria.