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Fact Sheet

Bottling line microbiological audit

Introduction

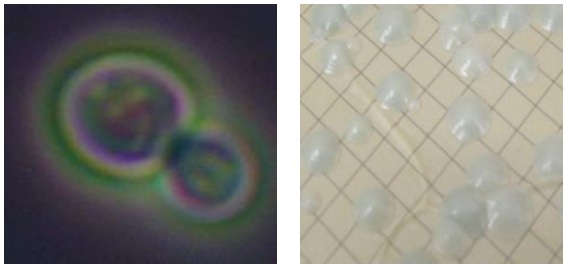
Packaging is an important step in the wine production process that strongly influences the integrity of wine that reaches consumers. If microbial contamination occurs during packaging it may not only result in off-flavours but can also cause hazes and deposits, both of which negatively affect consumer perception. Each year the AWRI helpdesk is contacted about packaging-related microbial spoilage issues such as filter failures, refermentation in bottle and sporadic yeast or bacterial growth. The worst cases of such problems can result in costly product recalls and brand damage.

In response to these issues, AWRI Commercial Services is now offering microbiological audits of bottling lines. The audits involve testing bottling lines for sterility at Critical Control Points (CCPs) to help identify potential risk areas that could lead to contamination problems.

Why is it important?

Wine spoilage microorganisms are found in numerous locations around packaging facilities, and may easily be introduced into bottling lines through inadequate sanitation procedures, flaws in infrastructure or procedures and running contaminated products through the line.

These spoilage microorganisms continue to present difficulties for bottling facilities, especially with favourable conditions resulting from a shift towards higher sugar levels and lower alcohol wines.



Yeast cell viewed under the microscope (left) and microbial growth on agar plate grown from a sample taken from a bottling line (right).

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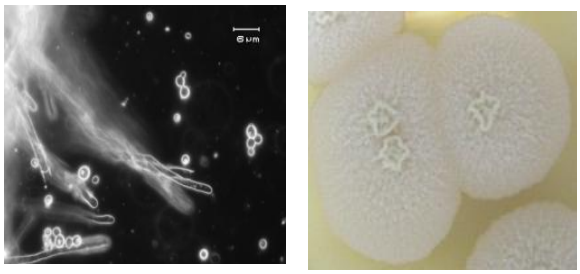
Additionally, insufficient Quality Assurance (QA) sampling regimes and/or methods can mask an underlying sterility problem, giving an artificial impression that everything is OK. It is essential that any QA regime is robust enough to ensure that all maintenance and cleaning-in-place (CIP) operations are effective in controlling the risk of microbiological contamination.

An independent audit can provide confidence and assurance that current microbiological contamination management procedures are proficient, or alternatively provide vital information to enable risks to be reduced. Rather than accepting and attempting to manage sporadic yet ongoing contamination problems, the identification of the root cause of contamination and subsequent rectification will prove to be far more cost effective in the long term.



Images of contaminating microbes isolated from bottling lines.

What does a microbiological audit involve?

The service involves completion of the following tasks for a bottling line:

- Review of past/current issues
- Evaluation of current sanitisation methods and practices
- Identification of design and infrastructure risks (e.g. degraded o-rings, unused valves)
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- Testing of up to six inputs to the packaging line (wine, rinse water, dry goods, etc.) for the presence of viable microbes
- Swabbing of up to 40 points throughout the line and plating out of the swabs to test for viable microbes

The ideal time to conduct the audit is immediately after a full sterilisation procedure. For a thorough assessment, it is preferable to gain access to internal surfaces of the bottling line to ensure representative sampling. While not essential, it is also ideal if in-house staff can be available to assist this sampling.

Deliverables include:

- Executive summary
- List of recommended actions for improvement and ongoing management.
- Quantified swab and sterility test results.
- Images of contaminants at visual and microscopic level.

Additional support available includes:

- Microbiological identification
- Additional swab and sterility tests
- Chemical analysis of standard wine parameters
- Ongoing routine sterility surveillance
- Support with the implementation or optimisation of QA protocols

- Support with the reconfiguration of packaging infrastructure
- Oxygen management audits

How much does an audit cost?

The standard service costs $2,800 excluding GST, additional tests, travel and accommodation costs if required. Customised services to meet specific needs are available upon request.

All information will remain commercial in confidence.

Contact

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