Retesting Food Microbiological Samples

On occasion, particularly when the result from a microbiological analysis is unexpected, some customers will ask for a re-test. This may be possible, however, the results obtained are likely to be difficult to interpret and offer limited value, so it is often not beneficial. The reliability of microbiological analyses by an accredited laboratory is high, and confirmation by a second analysis is not needed as it is scientifically irrelevant.

Retesting the original sample

Considerations

There may not be sufficient remaining sample available for a re-test

- Microbiological testing methods are destructive in nature; foods are used up in conducting the original tests.
- Following commencement of analysis, if excess food material remains it will be retained by the laboratory for only a few days after the commencement of analysis, depending on the nature of the food, before it must be disposed of.

Storage conditions affecting microbiological survival and growth will have changed

- The act of opening the sample to carry out the original testing can change the conditions of the remaining food in several ways, and it is often impossible to perfectly re-seal them. Consequently, microbiological re-test results may not be the same as if the sample had not been previously opened. All of these changes in conditions can allow faster growth of some microorganisms and die-off of others, e.g.
    - Modified atmosphere or vacuum is lost from packaging
    - Removal of part of the food creates differences in balance of food microflora
    - Imperfect re-sealing allows changes in food intrinsic properties, ‘drying out’, dissolved oxygen, etc.
- For some tests we cannot consider testing previously opened packages, due to the target microorganisms’ atmosphere-sensitivity

Growth or die off over time

- Any microorganisms in the original sample may naturally be able to grow or die off over the time between start of the initial analysis, and the re-test request following receipt of results. This will be several days at least.

Uneven distribution of microorganisms in food

- Our customers select food samples for microbiological testing, however it is often the case that microorganisms are unevenly distributed through foods, and even within a single sample some area of the food may have different microorganisms present, so the part of the sample used for the first tests may give different results than another part used for a second test.

Interpretation of re-test results

As you can see, there is every possibility that the results from re-testing microbiological samples will be different from those obtained in the original test.

There is no reason to believe that the original result is incorrect.

Only in very limited circumstances it may be worth re-testing the remains of the original sample in order to gain further information about the status of the food after it has been open for several days.

If it is suspected that the original test results were due to the sample having been compromised (e.g. stored incorrectly before submission to the lab), then all the results from that sample could reflect this. There would be no value in re-testing the same sample, but it may be worth submitting a new uncompromised sample for testing.

Repeating the test with a new sample

Considerations

Growth or die off over time

- Any microorganisms in the same food tested at a different time may have grown or died off since the original sample was tested.

Uneven distribution of microorganisms in food

- Our customers select food samples for microbiological testing, however it is often the case that microorganisms are unevenly distributed through foods, and even within a single sample some area of the food may have different microorganisms present, so the part of the sample used for the first tests may give different results than another part used for a second test.

Low levels of contamination

- When a pathogen such as *Salmonella* contaminates a food that has been subject to food safety controls, it may be present only at a very low level. This is still a food safety concern, as severe illness can be caused even by low levels of some pathogens, but there may not be enough pathogen present overall for some to be in every individual pack.

Interpretation of repeat test results from new samples

Microbiological results from different samples of the same batch of food can have different results, especially when the samples have different dates of analysis. This does not mean that one of the results must be wrong. We just have more information about the batch of food that was sampled. Analysis of multiple samples of the same food can be very useful in some circumstances.

Which result is the right one?

Sample 1: Salmonella detected in 25g

Sample 2: Salmonella not detected in 25g

BOTH ARE

Is it worth re-testing or repeating tests?

Results of analysis should never be ‘replaced’ by subsequent testing unless it has been established that:

- The results were generated from a sample that was not valid, if it was compromised, or not representative of the food (i.e. wrong sample submitted).

OR

- The laboratory recalled the result. This can happen on occasion, e.g. due to QC failures, or as a result of an investigation.

Re-testing previously opened samples is not recommended, and if deemed necessary in a few strictly limited situations the results must be interpreted with great caution.

Testing further samples of a food in which an issue has been identified can be a helpful part of investigation and root cause analysis and can help with understanding the extent of a problem. It does not invalidate the originally reported result.

FTUKI165FY1

uksales@ftuki.eurofins.com | 0845 604 6740

eurofins