Testing Proficiency Samples with the BAX® System

Proficiency testing (PT) is commonly used by food microbiology laboratories globally as a way to confirm that laboratory methods are in control and verify their competency to perform a selected method. Throughout the year, participants have the ability to select blind samples across a wide range of target organisms and matrices prepared and dispatched by proficiency providers (1). Following testing, participating laboratories report their results to the PT provider. Results for each participant are evaluated against pre-established criteria and are reported back to the laboratory as pass/fail or satisfactory/unsatisfactory.

When selecting a PT matrix, the sample should be representative of the matrices routinely analyzed by that laboratory. Once the sample is received and the laboratory is ready to initiate testing, the test material should be treated as if it were a "real world" sample following the method of their choice (1). For use with the BAX® System, validated enrichment methods for the specific food matrix must be followed for accurate results. These enrichments can be found in the BAX® System User Guide and have been reviewed and certified by various independent third-party authorities such as AOAC, AFNOR and Health Canada. Additionally, there are many fit-for-use validations for target-matrix combinations that are not listed in the BAX® System User Guide. These internal studies have been designed and conducted according to the same technical guidelines required for the validation of microbiological methods for food and environmental surfaces (2, AOAC INTERNATIONAL Appendix J) but have not been submitted for independent review. Contact Hygiena's Diagnostics Support team (diagnostics.support@hygiena.com) for enrichment details for any matrices not found in the User Guide. The table below lists common PT samples and the appropriate enrichment conditions for various target organism analysis with the BAX® System.

Table 1. Enrichment Details for Testing Common PT Samples with the BAX® System

Target Organism	Food Matrix	Enrichment Method
E. coli O157:H7	Skimmed milk powder	Homogenize 25 g sample with 225 mL of pre-warmed (42°C) mTSB containing 2 mg/L novobiocin and incubate at 42°C for 22-24 hours. **A 3-hour BHI regrowth is necessary.**
	Oatmeal	Homogenize 25 g sample with 225 mL of pre-warmed (42°C) mTSB and incubate at 42°C for 22-24 hours. **A 3-hour BHI regrowth is necessary.**
	Lyophilized meat	Homogenize 25 g sample with 225 mL of pre-warmed (42°C) BAX® System MP media and incubate at 42°C for 15-24 hours.
Listeria species/*Listeria monocytogenes*	Skimmed milk powder	Homogenize 25 g sample with 225 mL of pre-warmed (20-35°C) 24 LEB Complete media and incubate at 35°C for 24 hours. Transfer 0.1 mL of the primary enrichment into 10 mL of pre-warmed (35°C) MOPS-BLEB and incubate at 35°C for 18-24 hours.
	Oatmeal	Homogenize 25 g sample with 225 mL of pre-warmed (20-35°C) 24 LEB Complete media and incubate at 35°C for 24 hours. Transfer 0.1 mL of the primary enrichment into 10 mL of pre-warmed (35°C) MOPS-BLEB and incubate at 35°C for 18-24 hours.
	Lyophilized meat	Homogenize 25 g sample with 225 mL of pre-warmed (20-35°C) 24 LEB Complete media and incubate at 35°C for 24 hours.
Salmonella	Skimmed milk powder	Homogenize 25 g sample with 225 mL of pre-warmed (35°C) Brilliant Green Water. Let stand at room temperature for 55-65 minutes. Do not mix or adjust pH. Incubate at 35°C for 22-26 hours. **A 3-hour BHI regrowth is necessary.**
	Oatmeal	Homogenize 25 g sample with 225 mL of pre-warmed (35°C) BPW and incubate at 35°C for 20-24 hours. **A 3-hour BHI regrowth is necessary.**
	Lyophilized meat	Homogenize 25 g sample with 225 mL of pre-warmed (35°C) BPW and incubate at 35°C for 20-24 hours.

References

1. Dell'Aringa, J. 2017, October 11. Proficiency Testing Considerations. Food Safety Tech eMagazine. https://foodsafetytech.com/feature_article/proficiency-testing-considerations/.

2. AOAC Official Methods of Analysis. 2012. Appendix J: AOAC INTERNATIONAL Methods Committee Guidelines for Validation of Microbiological Methods for Food and Environmental Surfaces. http://www.eoma.aoac.org/app_j.pdf