Shelf-life test of Tactical Solutions OÜ products

Customer: Tactical Solution OÜ

Purpose of the test: Evaluate the “best before” time of freeze-dried food product using accelerated shelf-life test

Test methods: Accelerated Shelf-Life Testing also known as Accelerated Aging

The Accelerated Aging process is based on the relationship between temperature and reaction rate where an increase in temperature increases the reaction rate (Arrhenius equation). Tested time points for the analyzed products were 1 year, 2 years, 5 years and 8 years.

Analyses: Sensory evaluation, water activity and moisture content.

At each time point, descriptive sensory analysis was carried out in sensory lab (ISO 8589:2007) with a trained panel of eight professional sensory assessors, who had long-term experience in evaluating different food products. At each time point, the moisture content and water activity of the products were also measured. Moisture content was measured using Mettler Toledo HR38 halogen moisture analyzer. Water activity was measured using Fast-lab water activity meter.

Results: The results of sensory analysis confirmed that all tested products are suitable to have “best before” time at least 8 years. Although products showed some decrease in sensory quality during storage, the overall quality of the tested products in each analyzed time point was still satisfactory by the evaluation of professional panel. The water activity and moisture content analyses showed that the packaging material used for the products are suitable for freeze-dried products with long storage time in given storage conditions, there were no significant changes in terms of water activity and moisture content.

Conclusion: Tested products have “best before” time at least 8 years.

Rain Kuldjärv,
Project leader, Center of Food and Fermentation Technologies
Ph.D. student, Tallinn University of Technology