MAT CONTROL (Laboratory for the Preparation of Quality Control Materials) is a specialized laboratory of the Analytical Chemistry Section of the University of Barcelona whose objectives are:

- Prepare environmental and agro-food reference materials for quality control (QCMs) as well as considering specific requests
- Organize periodic proficiency testing schemes
- Advise on subjects concerning quality assurance of the analytical laboratories

Since 2003, MAT Control organizes proficiency testing schemes in the field of waste characterization, analysis of cereals and for determinations by organic elemental analysis. The technical team of MAT Control is available to participants for any questions arising during the development of the proficiency tests conducted (www.matcontrol.com).

The **characteristics of the Proficiency Testing (PT) organised by Mat Control** follow the requirements included in ISO 17043 and are described below:

TECHNICAL POINT	CHARACTERISTICS
Type of participants	- Specific laboratories of the PT scope (accredited and not accredited)
Design of PTs	- Matrices and parameters established by the Organizing Committee of each PT which includes expert laboratories
Registration Call	- Provided information: aim of the test, origin and type of test item to be analysed, parameters to be determined, specific testing conditions, schedule of the exercise and participating cost - Sending via e-mail - Registration cost includes: preparation and submission of samples, technical reports of results and right to attend the final meeting for results discussion (if applicable)
PT frequency	- Monthly, semi-annual or annual (depending on the PT scheme)
Confidentiality	- Random coding system of the participants ensuring confidentiality
Type of test items	- Matrices obtained by sampling or by acquisition to specific providers - Preparation by fortification of real matrices
Assessment of homogeneity and stability of the test items	- Previous homogeneity test before bottling (global parameter/s) - Final homogeneity of the produced batch (about 3% of produced units and for representative parameter/s of the PT) - Stability during the PT period (same parameter/s as for the final homogeneity)
Transport and sending of test items	- Conditions: appropriate to ensure integrity - Sending by courier - Attached documentation: laboratory code, participation instructions and acknowledgment of receipt sheet

TECHNICAL POINT	CHARACTERISTICS
Participation instructions	- Sample preservation (if applicable) - Specifications of the test conditions - Number of replicates - Units and results expression - Deadline for results submission
Results delivering	- By e-mail (files provided by Mat Control)
Statistical treatment	- Performed on the data supplied by participants on informatic support (without any other transcription operation or further manipulation) - Robust statistics according to international recommendations (ISO 13528). - Procedure: • Removal of values outside the range median ± 50% • Establishment of consensus values by robust statistics (robust mean and robust standard deviation). • Establishment of uncertainty of consensus value • Technical competence of participants: z-score on the basis of target values (objective evaluation)
Technical report (submitted by e-mail)	- Identification of responsible for the report - Aim, design and schedule of the exercise - Organising Committee - Sample description and results of homogeneity and stability studies - List of participants (maintaining codes confidentiality) - Description of the statistical data treatment - Results of the exercise for each parameter • tables with the measurement values of all participants • statistical analysis (identification of excluded laboratories, accepted laboratories for statistics, robust mean, robust and target standard deviations and uncertainty) • graphics of the treated data • z-score values and graph - Methods used by participants and further information (if applicable)
Final discussion	- Results discussion meeting with the participant laboratories at the end of each PT (if applicable)