

Round Tables



THE GREATEST INDUSTRIAL ROUND TABLES SESSIONS

They deal with topics and key issues and lead to an open discussion among participants.

Agrifood: Metrological advantage - Safety and Metrology

Metrology is an essential "tool" for quality. It allows first of all the company to demonstrate its ability to meet regulatory requirements necessary to trade. Nevertheless, the function of metrologist is more important than managing a fleet of measuring instruments, control and calibration. He has to be proactive to prevent the products marketing unfit for consumption or harmful to the company's image. It is furthermore inconceivable to provide the customer a product with measurable variability, although this remains in the manufacturing tolerance. Product traceability is essential in order to recover a set of incriminated products as quickly as possible before even marketing. The slightest mistake can quickly become a major problem; the customer gives rarely a second luck.

Metrology nevertheless remains neglected rather than being valorized. However, it also saves money by avoiding waste. The product quality is optimized by a good control of manufacturing process, which allows minimizing the raw material. It is sometimes necessary to the profitability and survival of an activity. This roundtable is centered on the advantage of metrology in the field of Food Processing, packaging, product evolution, contaminations...

In a few words, metrology in Agrifood: a winning tool for security, quality and profitability of the company.

All experts will gather around the table in order to expose their points of views and answer all of your questions. It will be a place for constructive and meaningful exchange.

Outsourcing the metrology function: dream, reality, necessity, obligation?

When the question of outsourcing the metrology function is raised, the first thought is generally of subcontracting calibration. But the metrology function is not just about managing measuring instruments. It is the function that guarantees control of measuring processes. This makes the question more complex. Can this expertise, strategic for the life of a company, be outsourced? Instinctively, we want to answer no.

But if we think more carefully, the answer is not clear. Certainly, measurements are increasingly complex and requirements increasingly strict; controlling risk requires skills in measurement uncertainty and process analysis and knowledge of quality reference systems, standards and regulations, documents which are evolving constantly.

Finally, control of the metrology function requires a high level of expertise to ensure maximum performance. Is this currently compatible with the daily life of a company and its core business? We may be tempted to compare the metrology function with accounting. This activity is obviously vital for the smooth operation of any organisation, but it now requires such a high level of ability that it has become natural to call on specialist firms. Apart from a few exceptions, companies no longer maintain chartered accountants on their staff. Could and should the metrology function take the same route? Will the metrology function in the future be entrusted, perhaps out of necessity, to expert laboratories? This is the issue we propose to discuss at this round-table.

Perception analysis in service of metrology

The analysis of perception, and by extension sensory evaluation, has been part of a philosophical tradition for centuries, in which we seek to know whether we are governed by the "senses" or by the "mind". In 57 BC, Lucretius wrote: **You will discover that the senses engender the first notion of truth, and that they are infallible.**

CFM wishes to approach perception analysis from a variety of perspectives: sensory measurement and applied problems, but also studies of how perceptions are judged. How can we develop scales of reference; how is man as a measurement tool calibrated; how can we guarantee that a sensation is accurate? Where are the limits between the FUNDAMENTALS of cognitive psychology and the techniques of sensory marketing – what is SENSORY METROLOGY?

Thanks to feedback from our participants, CFM will demonstrate that sensory analysis combined with hedonic tests constitute the most appropriate tool for measuring perceived quality. Although based on individual appreciation, the sensory analysis method seeks to achieve a certain objectivity. The goal of sensory metrology is to obtain an objective evaluation of sensation. This recent form of metrology is gradually building the knowledge base that will allow for objective comparisons by establishing references, evaluation methods, expert panels etc. The approach is similar to that found, for example, in chemical metrology...

While sensory metrology is a tool that has been used for decades in the food industry, its field of application has widened to include many other industrial sectors such as cosmetics, textiles, the automotive industry, construction, domestic appliances, IT...

Non-food examples are legion, including:

- Seeking out unpleasant smells due to construction materials,
- Studying noise in the development of computer equipment or household appliances,
- etc.

In each case, the goal is to quantify the client's perception of the finished product in terms of the five senses. Sensory evaluation or analysis is not just about making simple, subjective observations. It is a real scientific approach based on transforming sensations into measurable data. In practice, sensory analysis is based on:

- a preselected panel of subjects,
- a sensory analysis room,

- tests chosen according to the products to be analysed,
- statistical processing tools for analysing the data collected.

Neither measurement nor metrology are purely mechanical questions; sensation and perception are above all the neurophysiological foundations of each individual.

Risk measurement and Control : New approach in ISO 9001:2015

Measurements are vital to enable companies to take the right decisions, and consequently the quality of these measurements has a direct impact on the decisions taken and the risks incurred.

These risks can be of different kinds, such as economic risk, most instinctively, because we can associate this with the costs of scrapping or retouching products (classically customer/supplier risks), legal risk, such as declaring a safety-critical part compliant when it is not, or risk relating to brand image (product quality).

These notions of risk have often been well known to companies for a long time (e.g. efficiency curves for acceptance testing or AMDEC-type methods), but it must be acknowledged that international standards did little to explain or emphasise these concepts. The notion of risk is often "hidden" behind other concepts, fading into the background.

In metrology, the notions of measurement uncertainty and the capability of testing methods incorporate these notions of risk and the associated consequences (e.g. defective PPM), but this does not mean that the metrology function has a perfect mastery of these concepts or is able to adapt them to different contexts. How many measuring instruments have been calibrated just because a standard (or an auditor) required it, without questioning the need or the risk?

But this is a thing of the past with the new ISO 9001:2015 standard, which introduces the notion of risk in relation to the systems to be put in place, and the ISO/IEC Guide 98-4! Will these standards open up new performance horizons for business?

Metrologists must now be able to quantify the risk of non-compliance in relation to the final risk.

But how can this notion of risk be placed at the heart of metrology while achieving a "lean metrology"?

Metrologists have to become the guarantors of a measurement process and master the factors that affect it to achieve real control over risk.

Briefs explanations and discussions of key questions:

- How can corporate risks be expressed in terms of metrology?
- How can metrologists become involved in decision-making by distinguishing what is necessary from what is not?
- How can risks in metrology be quantified, and operations be reduced to the minimum necessary?
- What are the new prospects for metrology and the work of metrologists?
- Metrology as a profit centre?
- What help do these new standards provide?

Best practice in Healthcare: role of Metrology

The healthcare sector is highly regulated to combat any risk to public health as early as possible.

Bringing a new drug to market involves long phases of validation before authorisation is granted. The production, storage and transport of drugs are strictly supervised by monitoring organisations. The ANSM (national drug and healthcare product safety agency) in France, the EMA (European Medicines Agency) in Europe and the FDA (Food and Drug Administration) in the USA are the players in this market surveillance.

Accreditation for medical biology laboratories under the ISO 15819 international standard, "Medical laboratories — Particular requirements for quality and competence", which is gradually being adopted across a number of countries, is another element of supervision in the sector.

In this context, the healthcare sector has a natural obligation to control these risks. Whether in drug development or production, the storage and transport of medicines or reagents or the conducting of biological analyses, processes must be perfectly controlled to minimise risk.

Measurement will play a central role here as an objective element in inspections, vital in decision-making. It will be involved at several levels: during equipment approval processes (the installation, operation and performance phases), during the production and release of a batch of drugs, during storage (particularly the controlled-temperature storage of medicines or reagents), during biological analysis etc.

Naturally, best practice has been described by a number of interested parties in the form of guides and standards (such as the ICH guides published by the International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use).

But what role can or should metrology, and particularly the metrology function, play in mastering this best practice?

Energy Transition : Metrology meets Challenges

The energy transition is running. This revolution of governmental or regional policies aims to better manage the world's energy resources for the benefit of present and future generations. Changes in our energy consumption patterns (industrial, citizen) contribute to accelerate the evolution of our model of society. The energy transition model varies according to the country. In Europe, the objective is to reduce the consumption of fossil fuels to support the development of renewable energy sources as an accepted energy mix.

At the heart of this movement, metrology appeared as a useful tool to optimize the transition process.

The 3 main areas where energy metrology, contributes are:

- Production and Conversion
- Transport and storage
- The end use, Applications

This round table aims to illustrate the discussion with examples of current research and industrial initiatives based on better integration of process measuring the energy consumed.