

## Food Contact Material Services

With growing complexity of the industrial sector and the necessity to guarantee total safety, it is essential to control each step of the production process. All materials that come in contact with food must be controlled; in order to avoid any risk of contamination and to ensure compliance with any predictable modalities of use.

The Regulation EC/2023/2006 (concerning Good Manufacturing Practice) and the general dispositions of Reg. EC 1935/2004 requires that any material or article manufactured in accordance with GMP must be sufficiently inert to preclude substances from being transferred to food in quantities large enough to:

- Endanger human health
- Cause unacceptable changes in food composition
- Spur deterioration of the product's organoleptic properties.

In order to verify the above mentioned requirements, the regulation foresees the adoption or modification (if present) of specific measures for groups of materials and objects (e.g. EU Regulation 10/2011 for plastic materials, EC/84/500/EC Directive for ceramics). If no EC regulations can be applied, the national laws can be adopted (e.g.: Italian Ministerial Decree 21/03/1973 for heterogeneous plastic, paper, glass, gum, regenerated cellulose).

Not only must the user know how to choose the best material for his food, but manufacturers must offer safe materials produced with raw materials free of potential contaminants and under GMP, in accordance with what is foreseen by Regulation EC/2023/2006.

## Silliker Offer

### 1. Legislative assistance and risk assessment

Silliker can count on a dedicated staff of qualified and up-to-date Food Contact Experts able to support customers with specific technical advice:

- Technical and legislative assistance according to international regulations
- Evaluation of technical documentation in order to identify the critical characteristics of materials and to draft specific analytical protocols
- Evaluation of the compliance with positive lists of substances used in the production of materials regulated by specific norms (e.g. plastics, paper, rubber, etc.).
- Evaluation of the declaration of conformity for food contact products
- Evaluation of the labeling compliance with the regulations in force
- Dedicated and customized trainings
- Technical advice for GMP (Good Manufacturing Practice) accomplishment in accordance with local and International Regulations and Standards.

### 2. Analysis for the evaluation of food contact compliance

Silliker Italy offer services to support our customers in verifying food contact compliance such as overall and specific migrations according to the type of material. The tests are performed in compliance with law methods, recognized standards (UNI EN, DIN, LMBG, FDA, ISO etc.) or with internal methods (methods developed and validated by Silliker Italy).

#### Migration tests

The overall migration is the quantity of substance that migrates from the material to a liquid, which simulate the food extractive capacity; this test cannot identify which substance has migrated to the simulant but can track the total quantity of the substances transferred by the tested material. The conditions of contact (time and temperature) are set by law according to the real conditions of use of the food contact material. The food simulants can be aqueous, oily or alternative liquids.

The specific migration is the quantification of certain substances (monomers, additives, plasticizers, elements and metals, etc.) in a liquid food stimulant. This test is very important for those molecules regulated by norms that impose a limit of specific migration (SML).

#### Control of MQ

Determination of the content of substances in the plastic material for which the restriction is expressed as maximum amount (MQ).

#### Screening and Set-Off

Silliker Italy has developed analytical screenings to verify the presence of compounds, which could be potentially transferred from the material into the food. The screening approach has been applied and developed by the laboratory for the evaluation of the SET-OFF in printed materials.

- Analytical screenings for the detection of volatile and semi-volatile contaminants or not intentionally added substances (NIAS) in materials intended for to come in contact with food by HS/GC/MS techniques.
- Analytical screenings for the detection of non-volatile contaminants in material intended for contact with food by GC/MS and LC/MS.
- Analytical screenings to verify SET-OFF phenomenon in printed materials.

#### Food contact compliance of paper and cardboard products

- Control of the composition and purity requirements in accordance with Italian, French, BfR recommendations and "Industry Guideline for the Compliance of Paper & Board Materials and Articles for Food Contact".
- Determination of contaminants in paper and board (MOSH, MOAH, DIPN, phthalates, etc.).

#### Food contact compliance of ceramic products

- Specific migration of lead and cadmium

#### Food contact compliance of products made of stainless steel

- Overall and specific migration of nickel, chromium and manganese and verification of stainless steel composition

#### Food contact compliance of complex machineries

- Analysis for coffee machines, small appliances, systems for drinking water, cooking utensils.

#### Food contact compliance of products made of aluminum

- Verification of composition requirements for objects made of aluminum intended to come into contact with food.

#### Sensory analysis

- Olfactory and taste analysis according to UNI 10192; UNI EN 1230 p. 1 e 2 and Robinson test.
- Olfactory and Off-Flavour (tai) analysis according to UNI EN 1230-1 and -2 in paper and board intended to come into contact with food.
- GC/MS determination to identify and quantify the volatile substances able to migrate from the food packaging to the head-space inside the packaging.

### 3. Other analytical services

Silliker Italy can offer a complete range of analysis dedicated to materials intended to come into contact with food, including the physical-chemical characterization. In this way the customer has the opportunity to evaluate all the possible aspects of its products, from design and manufacturing till final use and disposal.

#### Analysis of polymeric materials and evaluation of their characteristics

- DSC analysis (Differential Scanning Calorimetry) to verify the composition and the characteristics of the polymers
- SEM analysis (Scanning Electron Microscope) to analyse the surface of the packaging
- IR analysis (InfraRed) to identify known polymers
- Physical-mechanical tests (thickness of plastic films, traction tests, etc.)
- Accelerated ageing tests to evaluate the preservation/deterioration of the tested material over time

#### Evaluation of the resistance

- Evaluation of the material after microwave heating and dishwashing.

#### Environment compliance

- Evaluation of packaging and packaging compliance with Directive EC/94/62: determination of heavy metals such as lead, cadmium, mercury and hexavalent chromium.

#### Biodegradability and compostability studies

Silliker Italy laboratory is approved by Vincotte certification body for the performance of tests according to the harmonized standard EN 13432 in order to obtain the quality mark "Ok Compost!".

This norm foresees the evaluation of compostability of packaging and packing materials through the fulfillment of different steps:

- Characterization of the material
- Biodegradability study
- Study and evaluation of disintegration and quality of the final compost
- Ecotoxicity studies

#### Research & Development

The research and development activities are carried out by expert and qualified staff. Cutting-edge equipment is dedicated to the development of new methods to determine new molecules and to lower the Limits of Detection (LoD) for the most critical molecules.

### 4. Training and Consultation

Swift Silliker offers customised training courses for the food packaging industry:

- ISO 22000
- PAS 223:2011
- An Introduction to Hygiene
- BRC Global standards for packaging and packaging materials
- HACCP

Swift Silliker is registered with FoodBev SETA:

- Training throughout Africa

Additional materials include:

- Training DVD's
- Posters
- E-Learning

#### Swift Silliker can assist with:

- Pre-assessment audits
- Situational analysis
- Internal Audits
- Documentation assistance
- Verification audit



FOR FURTHER INFORMATION CONTACT

Megan Smith on +27 21 683 8436  
or email Megan at [megan@swift.co.za](mailto:megan@swift.co.za)