



Food Manufacture

# Product Quality Analysis

## Lesson 2

This course is ideal for people working or have the potential to work in the quality or technical departments. The course describes the ways that product quality analysis is performed.





**Food factories  
have a  
schedule of  
testing product  
which includes:**

- Microbiological testing
- Chemical testing
- Organoleptic testing/sensory evaluation
- Physical testing



Microbiological testing of the product and ingredients is used to identify any microorganism growth and determine its impact on the safety of the food.





# Microbiological testing can be used:

- As a routine test to confirm that factory process control methods are effective and the product is safe
- In investigations with customer complaints
- Checking the quality of raw materials and ingredients
- End of product life testing to ensure the correct shelf life is given to a product
- Determine if a shelf life extension concession can be given to a product



Chemical testing of the product and ingredients is used to determine the chemical make up and structure of the food.



# Chemical testing can be used to:

- Validate any health claims
- Determine and monitor nutritional labelling e.g. ensuring the product meets the product specification and labelling information
- Detect any allergens present
- Assess natural toxicant levels
- Potential contaminants e.g. pesticides and packaging migrants
- Ensuring the product complies with any legal requirements e.g. quantity of food additives



Other more specialised laboratory tests carried out include:

- Meat species identification which helps to minimise food fraud.
- Organic food testing to test the quality of organic food.
- Honey testing which involves authenticity testing.





**Organoleptic testing is assessing the product and ingredients using the body's sense organs e.g. a taste panel test.**







Physical testing of the product and ingredients is used to determine the physical properties of food. It can identify imperfections, impurities and contamination.





# Physical testing can be used to test:

- Count and size
- Any defects
- Appearance, tightness and condition of inner surface
- Presence of any foreign materials
- Granulation/particle size
- Net mass and any relationship between components
- Texture determination
- Viscosity
- Weight
- Temperature



**The frequency,  
methods and  
specified limits  
of testing  
should be  
documented.**



If the results are not quantitative results e.g. bake colour then a standard or reference sample can be used with a pass or fail criteria.





The tests and inspection results are reviewed regularly to notice any trends.

Any external laboratory results will be acted on immediately.

Any unsatisfactory trends or results will be addressed and actioned appropriately.





Ongoing shelf life validation is performed and will include sensory analysis, microbiological testing and chemical factors such as pH and water activity. Results will determine the shelf life of the product.





Pathogen testing is best done externally however if it is performed inhouse then the testing facility will be fully segregated from the production and storage areas to prevent any risk of contamination.





**If there is a laboratory on site then there are certain control requirements for ensuring the safety of the product these are:**

- Design and operation of drainage and ventilation systems
- Security and access to the facility
- How personnel move around the facility
- Protective clothing arrangements e.g. laboratory clothing exclusive for the facility
- Processes for obtaining product samples
- Laboratory waste disposal





If a subcontractor undertakes analysis of the products they will have gained recognised laboratory accreditation to prove product safety and legality. A copy of this accreditation will be kept by the factory.





**The reliability of all laboratory results will be ensured by including:**

- Use of recognised testing methods
- Documented test procedures
- Suitably qualified/trained staff carrying out analysis
- Use of a system which can verify test results accuracy
- Use of calibrated and maintained equipment



# Revision Activity 2

**Name two reasons why chemical testing of food is carried out?**