BIOMETiC

Making the invisible visible

Mito

The first and only in-line
3D X-ray inspection system
for the food industry

MITO, THE ONLY 3D X-RAY FOOD INSPECTION SYSTEM

The Effective Solution for Safe Food of Highest Quality

Each food, like each sector of the food industry, has its own specific characteristics. That's why the real added value of Mito is the fact that it is **versatile and customizable to your production needs**. With Mito's powerful **Computed Tomography**, a unique combination of full 3D reconstruction and X-ray technology, food manufacturers can perform scanning and processing at very high speed and high definition detecting so any **foreign bodies** or food **quality defects**.

Discover how you can **optimize your production processes** today. Explore our range of Mito models to find the for **your specific food safety and inspection needs**.

Mito C

- Computed Tomography (3D & X-ray) (Full 3D Reconstruction & X-ray)
- Field of View: 250 or 350 mm
- Glass Jars, Glass Bottles, and Cans
- Food Safety (glass-in-glass, metals, plastics, …)
- Food Quality (fill level, jar seal, presence of vacuum, …)
- Production Processes Optimization

Mito M

- Computed Tomography (3D & X-ray)
- Field of View: 250, 350, or 500 mm
- Multipacks and Generic Packagings
- Food Safety (metals, plastics, dough clumps, …)
- Food Quality (integrity of package, alveolation, product number in package, …)
- Production Processes Optimization

Mito B

- Computed Tomography (3D & X-ray)
- Field of View: 250 or 500 mm
- Bulk Products
- Food Safety (kernel fragments, stones, metals, …)
- Food Quality (integrity of product, shape, …)
- Production Processes Optimization

OUR FOOD INDUSTRY SOLUTIONS

Applications of Mito in the Food Industry

After over 40 years of experience in in-line, high-speed scanning of biometric products, BIOMETiC has developed Mito, a solution capable of 3D scanning the inside of food packages. Mito can **detect and measure both food safety and quality characteristics according to the customer's inspection needs**.

Cannery

From jars with glass fragments on the bottom to filling detection, discover how Mito performs in-line 3D X-ray scans of cannery products.

Cheese & Dairy

Discover how BIOMETiC's 3D X-ray scanning technology performs food inspections and detects foreign objects in cheese and dairy products.

Liquid Foods & Beverages

Mito is an in-line inspection system that ensures safe, high-quality food products. Learn more about our inspection system for Liquid Food and Beverages.

Olives & Dry Fruits

Discover how BIOMETiC's 3D X-ray technology helps the Olives and Dry Fruits sector to optimize the product quality by detecting foreign bodies & internal quality defects.

Confectionery

BIOMETiC's Mito for the Confectionery Industry: Find out how Mito can meet the food inspection and safety needs for ice creams, sweets and bakery products.

Bakery

Learn how Mito, the only in-line 3D X-ray food inspection system for bread and baked products, meets the high-quality standards of the Bakery Industry.

Frozen Products

BIOMETiC's Mito is a unique system that performs not only food safety control but also quality control of frozen products and ready meals.

Other

Haven't you found your food industry? Contact us now without obligation to find out if we already have the application ready for you.

WHY OUR CUSTOMERS CHOOSE US

4 reasons to prefer Mito

In the food industry, there are several X-ray machine solutions, but Mito is the first three-dimensional scanner on the market. These are the reasons why our customers have preferred us:

Increases the level of security

Mito allows reaching a very high level of food safety thanks to the certain identification of defective, damaged or deformed products.

Assures the quality of the product

Mito is able to analyze and assure the quality of your product, as it has different analysis features that can be used to guarantee a flawless and conform final product on the market.

Optimizes the production processes

By knowing exactly how each product looks inside, Mito optimizes the up-stream and down-stream processes of your production line.

Allows a simple and intuitive use

It has an intuitive display and an easy-to-use interface, as well as a faster calibration, all of which make its operation faster and easier.

WHAT DIFFERS US FROM OTHERS

How Mito differs from classic 2D scanners

Generates three-dimensional scans

Mito generates 3D images thanks to 360° scanning with the help of a gantry, which rotates around the object.

Detects foreign bodies with greater precision

Foreign bodies can be detected regardless of their position and orientation.

Precisely evaluates products

Definition and location of relevant quality characteristics.

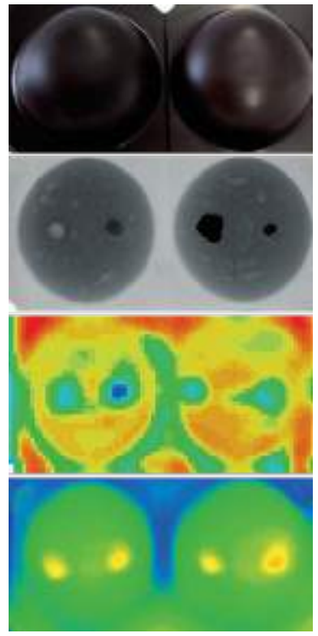
Scans packaged products

Packaging materials are X-rayed without affecting the scanning result.

Can be easily integrated into control systems

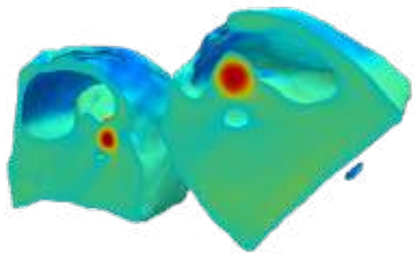
Mito can be integrated into all existing control systems.

01.)
02.)
03.)
04.)



Conventional 2D scanning results:

01.) Photography
02.) 2D-Radiography
03.) Terahertz
04.) Termography



3D reconstruction with Mito

Description	Technical data
Maximum reconstruction	250 mm (scanning area)
Working speed	Up to 40 m/min
3D reconstruction resolution (Voxel)	0,50 mm

BIOMETiC

www.biometic.com

THE INSPECTION NEEDS

Cannery Industry

In response to the market needs, many companies in the canning industry have increased their production and launched new products. However, the producer of canned food is not only **responsible** for the **production process** and the **quality** of raw materials, but also for the **packaging**. Jars of tuna with **glass fragments** on the bottom, jars of ready-made sauces closed by capsules with a flip but **without vacuum**.

FOOD SAFETY REQUIREMENTS

One of the risks most feared by canned food producers is that their products are **contaminated** by **foreign bodies** such as *metal, plastic, glass, stone, or bones*. Possible contamination causes are poor quality raw materials, insufficient processing of natural products, incorrect product control procedures, and human error in general.

All this leads to **financial losses for the recall** of the contaminated product already distributed, **damage to the brand image**, and difficulties in marketing the brand products with large-scale retail trade and consumers.

QUALITY CHARACTERISTICS

Getting a well-preserved product with the **right filling level** and **proper sealing** is just one of the challenges that canning producers face every day. It could be a jar of ready-made sauce or jam that has **lost its vacuum**.

Offering a product of the **highest food safety and quality to consumers**, especially to children in the case of baby food, is very important. It only takes a few incorrectly processed products to be forced to deal with **product recalls** and the **loss of loyal consumers.**

HOW WE MAKE CANNED FOODS SAFE AND OF HIGH QUALITY

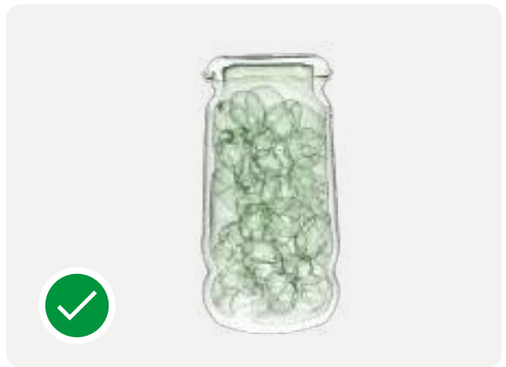
Possible Scan Results

Thanks to **real-time 3D scanning technology**, **Mito** not only allows you to **guarantee** your customers **safe**, **foreign body-free** food preserves of various formats but also of **high quality**:

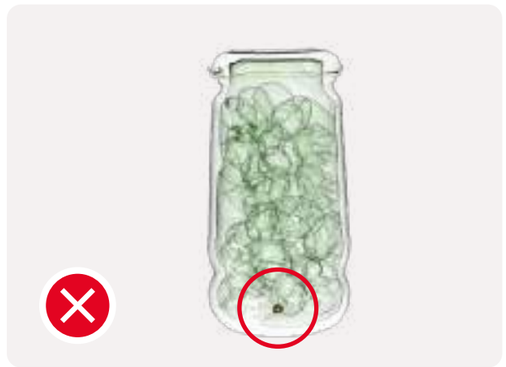
- Recognition of foreign bodies of different kinds, such as glass fragments in glass
- Identification of packaging that is damaged internally and/or externally control of the fillings level
- Analysis of jar seal

Compliant:
Food preserve with vacuum present (button down)

Non-compliant:
No vacuum present (button up)



Compliant:
Olives in a jar with uniform distribution



Non-compliant:
Presence of a glass fragment

THE INSPECTION NEEDS

Cheese & Dairy Industry

Even as children, our mothers teach us to drink milk because it is rich in calcium, making us grow up healthy and strong. And that's why, even as adults, cheese and dairy products are an integral part of our diet.

Milk-based products, however, have **higher transportation and storage costs, a shorter shelf-life, and a greater need for control of materials** precisely because they are also intended for children. For this reason, it is important to guarantee the safety and quality of the product, which must be **free of contamination** and have **excellent qualitative characteristics**.

FOOD SAFETY REQUIREMENTS

Among the most frequent causes of recalls in the cheese and dairy sector are reports of foreign objects that consumers find in cheese and dairy products. Unlike other industries, it is not so much metal contaminants that cause recalls in the dairy sector, but, for example, *glass shards* from chipped yogurt cups, *hard plastic fragments, and plant gaskets*.

Given that milk-based foods are an essential part of our diet, especially that of children, it is even more important to ensure their safety. This, by **guaranteeing the absence of contaminants** that lead to financial losses due to the management of product recalls, damage to the brand's image, and the cessation of purchases of the brand's products by mass retailers and consumers

QUALITY CHARACTERISTICS

Among the challenges that dairy food producers face every day are offering a product with correct filling level and weight, controlled sealing and/or homogenous eyeing.

However, it is essential to underline that even minimal savings on processing materials and/or on the quantity of product in a package means limiting, if not eliminating, waste within the production chain. These translate into **economic benefits for the company**.

HOW WE MAKE CHEESE AND DAIRY PRODUCTS SAFE AND OF HIGH-QUALITY

Possible Scan Results

Thanks to **real-time 3D scanning technology, Mito** not only allows you to guarantee your customers **safe, foreign bodies-free** dairy products, but also of **high quality**:

- Controlling the fill level of ingredients and/or products to avoid waste
- Recognition of foreign bodies of different nature, such as glass fragments in glass
- Verification of the number of individual products within a package
- Identification of products with internal quality defects
- Controlling of the balanced distribution of ingredients
- Identification of packaging and wrapping that is damaged internally and/or externally
- Determination of product dosage to avoid waste and ensure a top-quality product
- Analysis of product surfaces to expel packages or jars with damaged areas
- Detection of missing or damaged areas to eject defective, damaged, or deformed products from the production line

Compliant:
Glass yogurt jar without foreign bodies

Non-compliant:
Presence of a glass fragment

Compliant:
Cheese with regular holes

Non-compliant:
Cheese with oversized hole according to the set standards

THE INSPECTION NEEDS

Liquid Food and Beverage Industry

Ensuring consistent food safety and quality, high productivity, and reducing waste are essential aspects in the beverage and liquid food industry. The beverage and liquid food industry is, in fact, traditionally a sector that has specific high demands when it comes to product quality standards.

To guarantee a high-quality product, which is free of contaminants and has the correct filling level, is one of the main and most challenging priorities for this industry. To achieve this result, more and more companies rely on BIOMETiC Mito, the first and only 3D in-line X-ray inspection system that guarantees a 360° product inspection with measurement of the filling level.

FOOD SAFETY REQUIREMENTS

For the beverage and liquid food industry, one of the main challenges to overcome is guaranteeing safe products to their consumers. In fact, canned and bottled drinks and food products often are packed in multipacks and present packages of materials like glass and aluminum. This type of material can easily **lead to “glass-in-glass” and aluminum contamination**.

To prevent the contaminated products from reaching the consumers, and ending up in a massive product recall, in the past, food producers chose to implement conventional X-ray inspection systems in their line.

QUALITY CHARACTERISTICS

Another key aspect that the producers of this industry must not overlook when choosing the most suitable inspection system is the dimensions of the packages. The bottles and the **multipacks** in which the products are packed are often **wider and taller** than other food products packages on the market.

To guarantee top-quality products while also reducing costs and waste, producers **must prevent the packages from tilting** over during the inspection. This, while improving the accuracy of process control and filling level of their products.

HOW WE MAKE LIQUID FOODS AND BEVERAGES SAFE AND OF HIGH-QUALITY

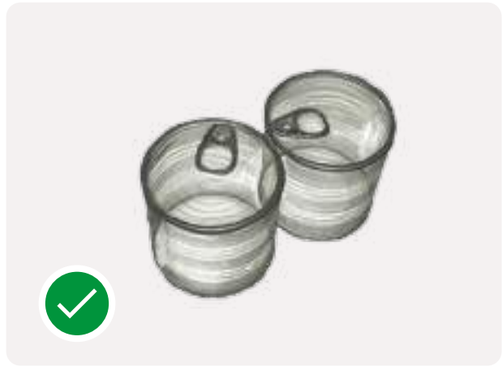
Possible Scan Results

Thanks to **real-time 3D scanning technology, Mito** not only allows you to **guarantee** your customers **safe, foreign body-free** liquid foods and beverages of various formats but also of high quality:

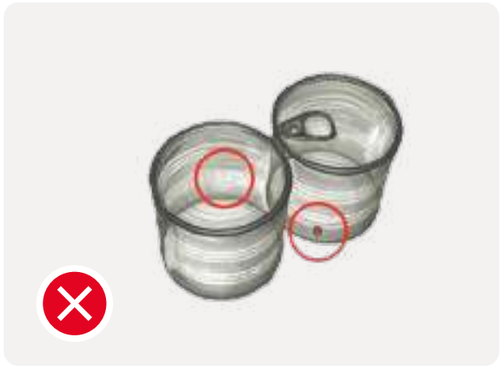
- Controlling of fill level to avoid waste and ensure a top-quality product
- Recognition of foreign bodies of different nature, such as glass fragments in glass bottles and aluminum fragments in multipack packagings
- Identification of products with internal quality defects
- Identification of packaging and wrapping that is damaged internally and/or externally
- Analysis of product surfaces to expel packages or jars with damaged areas
- Inspection of package seals for products with unchanged vacuum properties
- Detection of missing or damaged areas to eject defective, damaged, or deformed products from the production line

Compliant:
Baby food glass without foreign bodies

Non-compliant:
Baby food glass with glass fragment



Compliant:
Intact cans without foreign bodies



Non-compliant:
Damaged can and presence of an aluminium foreign body

THE INSPECTION NEEDS

Olives & Dry Fruits

Some people may not need a snack in between meals, but it's important to make nutritious choices for those who do. Modern consumers are so increasingly watching what they eat. By reducing fat, sodium, and sugar intake, they often opt for healthy, whole foods as snacks that help maintain energy throughout the day.

Consumers often go for olives and dry fruits as alternatives to common snack foods high in refined carbohydrates and simple sugars. Hence the need for olives and dry fruits producers to guarantee safe and high-quality products that offer a quick and healthy snack. Companies in this sector are increasingly investing in in-line inspection systems to **meet market demands and avoid possible complaints** with subsequent product batch recalls.

FOOD SAFETY REQUIREMENTS

No matter how much attention the producers put in the processing: Dry fruits and olives, like other food products, can get caught up in the complexity of supply chain logistics and be at **risk of contamination from foreign objects**.

As we know, product recalls are very serious threats to producers. Often, a small olive pit or a fragment of it is enough to endanger the well-being of consumers and ruin customers' loyalty to the brand. Consequently, producers need to intensify their food safety controls to protect their brand.

QUALITY CHARACTERISTICS

The need to meet consumers' taste and food quality expectations is very strong in the olives and dry fruits industry. It doesn't take much to get overwhelmed by customer complaints, lose brand-loyal consumers, and suffer losses due to ineffective production management.

Brand reputation becomes a top priority when it comes down to guaranteeing safe, high-quality products like olives and dry fruits. This is why it is increasingly important for producers to leverage an **efficient and reliable food quality inspection system** in their lines.

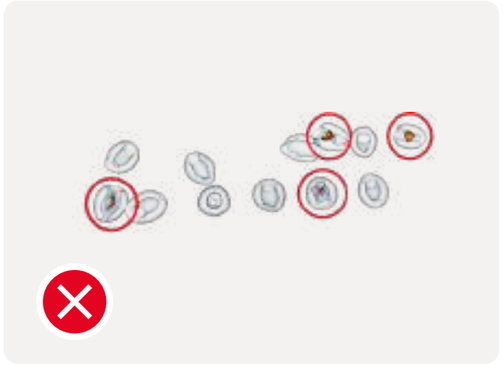
HOW WE MAKE OLIVES AND DRY FRUITS SAFE & OF HIGH-QUALITY

Possible Scan Results

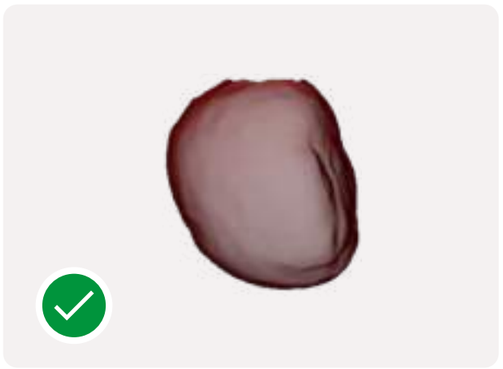
Thanks to r**eal-time three-dimensional scanning technology, Mito** allows you not only to guarantee your customers **safe, foreign body-free** olives and dry fruits but also to maintain their **high quality**:

- Identification and expulsion of products with internal quality defects
- Controlling the balanced distribution of ingredients
- Control of product dosage to avoid waste and ensure a premium product
- Detection of missing or damaged areas to eject defective, damaged, or deformed products from the production line
- Recognition of foreign bodies of different nature, such as pith fragments and stones

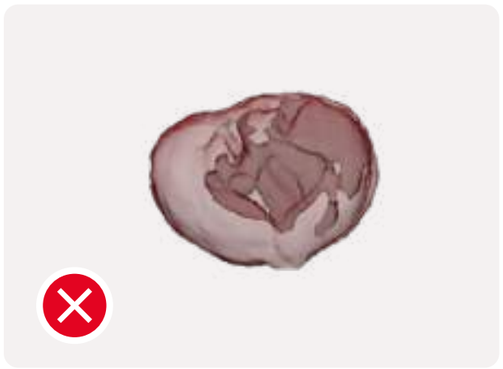
Compliant:
Mixed olives on the conveyor belt without foreign bodies



Non-compliant:
Presence of pith fragments



Compliant:
Healthy Chestnut



Non-compliant:
Rotten Chestnut

THE INSPECTION NEEDS

Confectionery Industry

Sweets play an important role in our diet, a little vice we allow ourselves to break the daily routine. On the one hand, this has led to an important development in **demand for high-quality products**, but on the other hand, and at the same time, to significant **growth in competition**.

Retaining customers has become an essential part of the company's business strategy. It is known that **satisfied customers are the primary ambassadors of a brand**. That's why food manufacturers need to ensure that products reach the consumer in optimal condition, safe, and high quality.

FOOD SAFETY REQUIREMENTS

Sweets are a moment of pleasure in people's daily life for the sensations they give: a small, perfect break from everything. However, there is a **risk of contaminants**. Foreign bodies can alter the mixture of ingredients or the materials with which foods of the sweets and confectionery sector are produced. Some of the most common include *metal, glass, wood, or stone fragments*.

It is not uncommon for raw materials to contain stones that damage machinery or stainless steel fragments that end up in dough or product packaging. As a result, the sweets and confectionery industry is **among the most susceptible to consumer complaints** leading to financial losses due to the handling of product recalls, brand image damage, and termination of brand purchases by mass retailers and consumers.

QUALITY CHARACTERISTICS

Getting a product with an evenly distributed filling, all the ingredients present, and the perfect pour is just one of the challenges food manufacturers face every day. It could be a box of chocolates with missing products or an ice cream with poorly distributed variegation.

Therefore, it is essential to **ensure the quality of products**, eliminating those that are defective, damaged, or deformed, and verifying the correct dosage of ingredients. This attention, above all, translates into **improved consumer satisfaction** and **savings on processing materials** and/or products in a package.

HOW WE MAKE SWEETS & CONFECTIONERY PRODUCTS SAFE & OF HIGH-QUALITY

Possible Scan Results

Thanks to **real-time 3D scanning technology**, **Mito** only allows you to guarantee your customers **safe, foreign body-free** sweets and confectionery products, but also of **high-quality**:

- Verification of the number of products by counting individual products within a package
- Controlling the balanced distribution of ingredients
- Identification of products with internal quality defects
- Analysis of product surfaces to eject products with damaged areas
- Detection of missing or damaged areas to eject defective, damaged or deformed products from the production line
- Recognition of foreign bodies of different nature, such as glass fragments

Compliant:
Gift box of chocolates with the correct number of pieces and without foreign bodies

Non-compliant:
Missing praline in the multipack and presence of a foreign body

Compliant:
Ice cream in a cup with homogeneous distribution and without foreign bodies

Non-compliant:
Presence of a foreign body

THE INSPECTION NEEDS

Bakery Industry

In response to the **new market demands**, many bakery manufacturers have adapted their products and/or launched healthier alternatives to continue offering attractive-looking and great-tasting foods, **promoting their brands, and building consumer loyalty**. In addition to choosing products they already know, the European Food Information Council (EUFIC) points out that consumers also make their choices based on food safety and quality.

FOOD SAFETY REQUIREMENTS

There are **several ways a foreign body can end up in a baked good**. Some of the most common include *metal, plastic, glass, stone, nut, or wood fragments*. In fact, in food production, the use of raw materials, maintenance procedures, process failures, and human error are often the cause of introducing physical contaminants into products.

It is, therefore, not uncommon for raw materials to contain **stones or metal fragments** to come off ovens and pans. These fragments can cause damage to machinery, end up in dough, or be introduced into product packaging.

As a **result**, the bakery industry is among the most susceptible to **consumer complaints** leading to **financial losses** due to product recalls, brand image damage, and cessation of purchase of brand products by mass retailers and consumers.

QUALITY CHARACTERISTICS

Obtaining a product with the correct ratio of dough to air, a balanced distribution of ingredients, and correct packaging is just one of the challenges that food manufacturers face every day. It may be a pandoro with missing or poorly distributed variegation or gluten-free bread with an unbalanced honeycomb structure due to improper processing.
The need to meet consumers' expectations for food quality is high. It doesn't take long to find yourself having to deal with customer complaints, losing consumers who were loyal to your brand until recently, and suffering losses due to ineffective production management.

HOW WE MAKE BAKED PRODUCTS SAFE AND OF HIGH-QUALITY

Possible Scan Results

Thanks to **real-time 3D scanning technology**, **Mito** allows you to customers **safe, foreign body-free baked goods** but also **high-quality food products**:

- Identification and expulsion of products with internal quality defects
- Controlling the balanced distribution of ingredients to ensure a uniform product
- Control of the dosage of the products to avoid waste and guarantee a first quality product
- Analysis of product surfaces to expel foods with damaged or missing areas
- Recognition of foreign bodies, such as fragments of glass and metal, and dough clumps

Compliant:
Sliced bread loaf with uniform distribution of the dough after baking

Non-compliant:
Bread slice with oversized air inclusion caused by a too rapid cooling process

Compliant:
Uniform distribution of jam inside the croissant

Non-compliant:
Incorrect filling quantity and irregular filling distribution

THE INSPECTION NEEDS

Ready Meals Industry

Modern lifestyles and consumer demands have led to rapid growth in the market for frozen products and ready meals. Pizza, pasta, meat, and fish – frozen products and ready meals that can be heated in the oven or microwave are becoming **increasingly popular among consumers**.

This is why food manufacturers in this sector feel the pressure to produce frozen products and ready meals of various types and flavors, with the right number and positioning of ingredients, but guaranteeing the **same level of a fresh, high-quality product**.

FOOD SAFETY REQUIREMENTS

The main cause for which frozen products and ready meals suffer complaints are foreign objects—some of the most common include *metal, plastic, glass, and stone fragments.* For frozen products and ready meals, contaminants are even more worrying because they are often consumed directly from the package.

Needless to say, a **recall of the distributed product is necessary**. The distribution of a product containing contaminants causes **financial losses** for the recall of the contaminated product already distributed, **image damage for the brand**, and subsequent **difficulties in marketing** the brand's products with large-scale distribution and consumers.

QUALITY CHARACTERISTICS

Checking for **proper ingredient distribution** is just one of the challenges frozen food and ready meal companies face every day. Assessing all aspects of product food quality to the best of your ability leads to satisfied consumers and a stronger brand image.

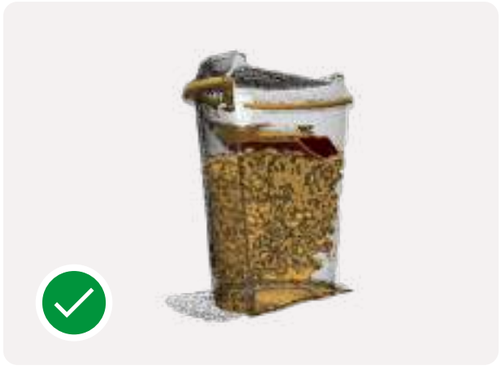
In the frozen food and ready meals industry, where **consumer expectations are very high,** it is **essential to offer a top-quality product at an optimized selling price**. In fact, it doesn't take much to be forced to deal with a series of complaints from dissatisfied customers.

HOW WE MAKE READY MEALS SAFE & OF HIGH-QUALITY

Possible Scan Results

Thanks to **real-time 3D scanning technology**, **Mito** not only allows you to guarantee to your customers **safe, foreign bodies-free** ready meals, but also of **high quality:**

- Counting and detecting missing components and ingredients
- Determination of the volume of packages, pouches, trays, and containers
- Verification of the presence and correct distribution of the fillings
- Surface analysis to identify damaged areas
- Ejection of defective, damaged, or deformed products from the production line
- Recognition of foreign bodies of different nature such as bones, plastic fragments, bone, glass



Compliant:
Oriental noodles with correct filling level, no foreign bodies, and complete kit

Non-compliant:
Missing kit component and presence of a foreign body

Compliant:
Frozen pizza Margherita with pepperoni without foreign bodies

Non-compliant:
Presence of a stainless steel fragment