

## Food Radar

Processing, Plants & Equipment

### **A New Unique Detection Technology for Foreign Bodies in Processed Tomatoes "The latest weapon in the fight against foreign bodies!"**

There is a new weapon in the arsenal available to fight foreign bodies. This safety technology is now proving itself within the community of tomato processors. Food Radar is a sensor system designed for emulsions and pumpable products including processed tomato, tomato based products, fruit preps, sauces and baby food to name a few. The system has the capability of detecting not only the denser foreign bodies (i.e., metal, stone, and glass) but is particularly suited to detect foreign bodies such as wood, plastic, bone, extraneous vegetable matter, and even insects. Up to now they have gone undetected and straight to the consumer. Pieces of plastic, rubber and diced corn cobs that has made it through the safe guards are typical object that the system can detect.

**"Building strong customer relations through "state of the art" product safety technology!"**

[Why consider this new technology?](#)

#### **1. Safety first.**

A piece of hard plastic, which can be easily detected and removed by the Food Radar, can be as dangerous to consumers as a piece of glass. The protection your business will enjoy

extends also to soft plastic (e.g. plastic bags), wood, pits, rubber hose and virtually all non-dense foreign bodies.

## 2. Quality and control.

Even lumps of the food product itself (such as lumps of starch, spices, pasta or rice) can be detected and removed with no fuss. This technology can help safeguard the quality of product and the control over your manufacturing process.

## 3. It's just good business.

Any incidence of foreign body contamination is damaging to both the manufacturer and retailer. It can damage trust in the brand, and the cost in time and money of legal proceedings can be vast.

### How it all works

The technology is based on a unique and patented technique that uses microwaves to detect foreign bodies. The detection system is designed for clean-in-place (CIP) and consists of four parts: an operator panel, a rejecter (valve) unit, a buffer pipe and a sensor unit.



All system components are hygienically contained in stainless steel cabinets, which are IP65 classified or higher. The sensor does not have any moving parts, and the rejection unit is a three-way valve, which has been certified by the European Hygienic Engineering & Design Group. The entire system takes up about one metre of pipe length and is, therefore, very convenient and easy to install leaving a minimum footprint.

The operator panel consists of a computer with a touchscreen interface. The system is very

user-friendly and the operator only needs to choose the right product group setting. In most cases that is limited to 2-3 different groups.

The sensor head is typically a 2.5-inch, acid resistant stainless steel pipe. The microwaves are transmitted and received via eight hygienically sealed positions.

The system measures the dielectric properties of the food flow. If an object differs from the norm it is detected and rejected from the flow.

The speed of the foreign object is measured and the eject signal is precisely defined, no matter if it is positioned at the centre of the pipe or towards the outer edge of the flow as these different positions has a major impact on the speed. The rejection opening time is optimised to ensure that the foreign body is ejected with minimal loss of product.

The system naturally monitors all functions and, should anything fall outside the norm, it will alert the operator.

### **Is it safe?**

An important question with a simple answer: yes, this is a safe technology, causing absolutely no damage to humans or the food being analysed.

The transmitted power level from the detection system is in the order of 0,001W (one one-thousandth of a watt), and this is up to 1000 times lower than the wattage emitted by a mobile phone. Compared to a microwave oven, the emissions of the system are between five hundred thousand to one million times lower. Hence, the microwaves cause no heating of the food as it is pumped through the pipe system. In summary, the microwave level used by the Food Radar is well within all safety levels.

### **The Food Radar has shown its capability in tomato processing.**

One of the companies that early on showed interest in the benefits the Food Radar offers was ALIMENTOS ESPANOLAS ALSAT, S.L. in Spain. They have now installed two systems. One system was installed two years ago. With the experience Alsat decided to invest in a second system before the latest harvest. The systems have proved themselves in their diced tomato lines. They have become a vital part of the safety program in place for this process. When pieces of corncobs, from the field, by mistake make it into the processing line and the dicing machine together with tomatoes they exit as diced corncobs. As they enter the Food Radar they can be detected and the system rejects them from the product stream. Many extraneous matters has been detected and rejected by the Food Radar at the different production lines where the system is in use. Some of the foreign matters were organic such as corn cobs or

waste such as parts of rubber hose.



*Example of foreign bodies that could be found in processed tomato (wood splinters, soft plastic, corn cobs and rubber).*

Manufacturers of fruit products have also identified the benefits this technology offers; not least because of the system's ability to detect pits and fragments. Manufactures of spreads, soups and sauces are also taking a closer look at the benefits offered by the Food Radar.

See for yourself!

In order to allow manufacturers to familiarise themselves with the system they can test their own product at the Food Radar Systems' pilot plant in Gothenburg. Prior to making investment decisions customers frequently visit the facility.

#### **'Plug and play'**

One of the great benefits is that the system really doesn't need any floor space and only makes a very minor footprint. It can be installed somewhere along the normal pipe, high or low at a suitable location somewhere before the filler. High-pressure air for the valve, water and power can all be arranged prior to installation. It is also practical to cut the production pipe at a convenient time before the unit has been delivered and install a temporary pipe section matching the system length. When installation is ready to commence, that section is removed and the unit is in place within in matter of minutes. Another great benefit as mentioned is that

you do not need to calibrate the system for each product

### [A new weapon](#)

The Food Radar offers those responsible for quality assurance an opportunity to review its operational feasibility. What was previously considered an unbridgeable gap in foreign body detection has been closed by Food Radar Systems' new microwave technology, which serves as an addition to conventional technologies already in place. It seems highly probable that, with the advent of the Food Radar we can look forward to additional weapons in place working together to fight foreign bodies and increase food safety.

### Alsat testimonial

*"At ALSAT we have a strong focus on product safety. As we strive to be in the forefront we identified the unique benefits that the Food Radar technology offers in our production situation. We can look back on a successful implementation in our diced tomato process"*

*Miguel Ángel Martín, CEO - Managing Director  
ALIMENTOS ESPAÑOLES ALSAT, S.L.*

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