



## A Bühler Case Study Grupo Elayo

- Separating olive seeds from same colour stones
- InGaAs and SORTEX technologies
- Creating valuable new products from waste

### The challenge

Grupo Elayo, Spanish olive processor based in Andalusia, has a first-class reputation, not only for its quality olive oil, but also for developing new products and applications from various parts of the olive fruit and tree.

Founder, Jose Maria Olmo Peinado, had the vision to turn tradition into innovation by exploring new opportunities for by-products of the olive oil industry. One of these developments was a procedure for extracting a highly-concentrated oil from kernels of olive stone seeds, which offers greater health benefits than conventional olive oil.

Before putting his olive seed plan into action, Peinado invested in a processing line to clean, dry, crack open and sort the olive stones from the seeds. However, sorting the seeds from the stones presented a problem. Because they were practically the same colour, none of the previously tried sorting technologies could reliably distinguish between them.



Mixture of stones and seeds.

### The solution

After several months of intensive trials, Bühler made a breakthrough, using state-of-the-art InGaAs camera technology, which can detect the subtlest differences in colour, not visible to the human eye. This made it possible to distinguish the olive seeds from the stones and seeds with embedded stone fragments.

Peinado installed Bühler's SORTEX sorting technology into his factory, involving three stages of processing. After the stones are broken, the mix of seeds and stone fragments is conveyed into the first chute of the sorting machine where the InGaAs cameras aid the separation of stones from seeds. This constitutes almost 90 percent of the material.

The remainder – about 10 percent – then undergoes another sort on the second chute, to ensure only flawless seeds, without any pieces of stone, are sent on for further processing. The third chute re-sorts the rejected material to recover any seeds still attached to stone, so they can be sent back to the cracking machine and re-sorted to minimise wastage of the valuable seeds.



Olive seed oil

## Benefits

- Using Bühler technology to extract seeds from stone, Grupo Elayo is the only company in the world capable of successfully producing olive seeds, olive seed flour and olive seed oil.
- Bühler's optical sorter enables a high throughput rate of around 700kg of raw material per hour with minimal loss of good seeds – a crucial success factor when it takes 25 tonnes of olives to extract just 1,250kg of seeds.
- The bioactive compounds in olive seed products are reputed to have significant health benefits - including antioxidant, anti-inflammatory, cardio-protective and anti-tumor.
- Olive seeds and olive flour are being used in the food industry for functional foods, bakery, confectionery, pasta and snacks.
- Olive seed oil is used in cosmetics, as a functional ingredient in the food industry and for medical applications.
- The olive stone fragments can be used to produce biomass for heating systems, fireplaces and barbecues. They can also be used as a raw material to make exceptionally robust and durable chipboard or ground into a powder for use as an exfoliant in cosmetic creams.



Olive stones



Olive seeds



Nutritious olive seed flour

## Feedback

“Bühler's technology makes us the only company in the world capable of extracting olive seeds successfully. The ability of Bühler's specialist teams to work alongside companies such as ours, to nurture innovation and grow, makes them stand out as leaders in their field and is further evidence of their commitment to working in partnership with customers to develop the best return in investment through product innovation.”

**Jose Maria Olmo Peinado, Founder, Grupo Elayo, Spain.**  
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## Technology highlight

- **Advanced Inspection System** - Ultimate detection of all known defects and foreign material.
- **PROfile™ Technology** - Detects defects which are the same colour as the good product and foreign material. Sorts objects by size, colour and shape.
- **Enhanced InGaAs Technology** - Detects defects which cannot be seen in the visible spectrum, providing much better separation of good product from foreign material of the same colour.



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