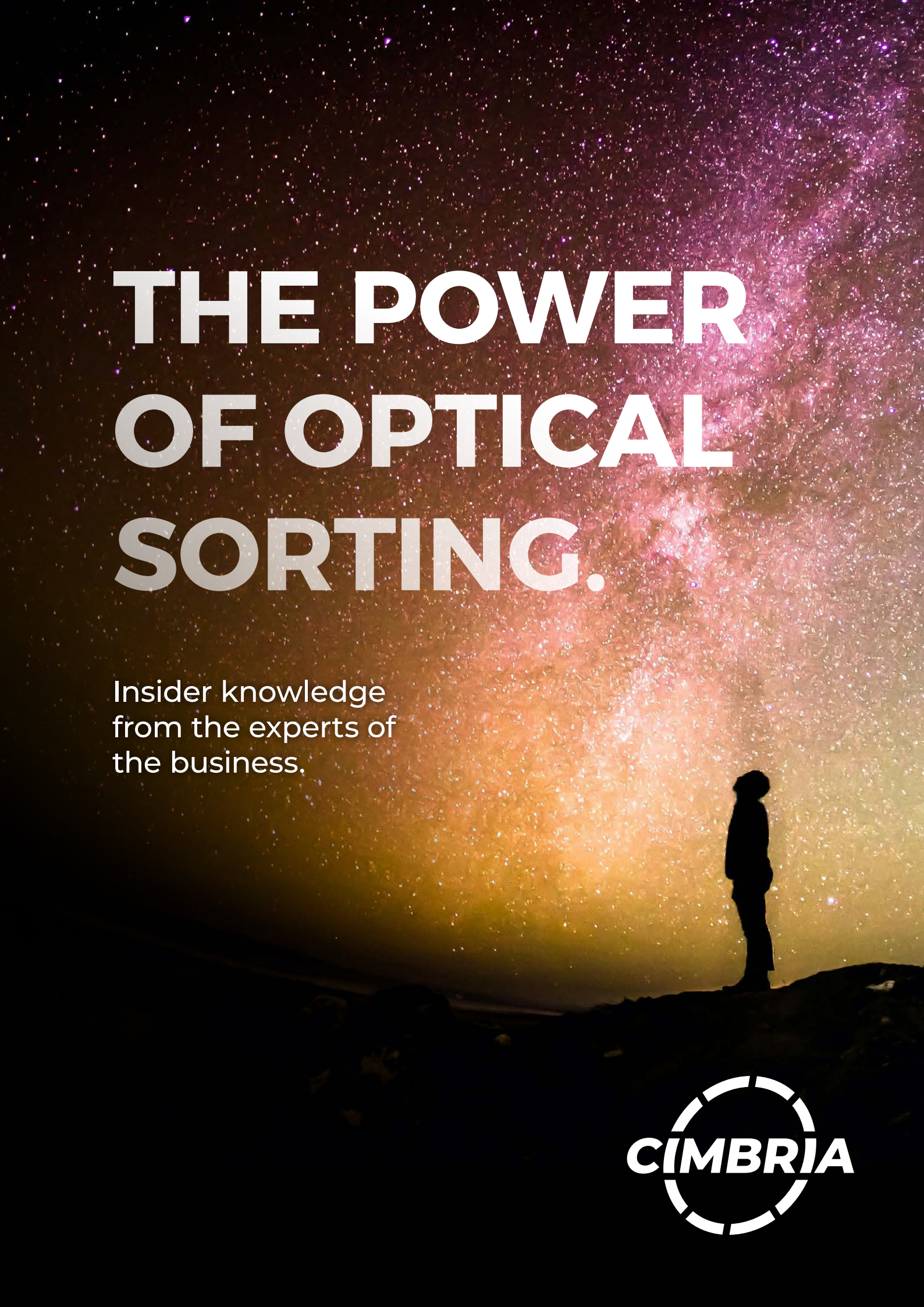
THE POWER OF OPTICAL SORTING.
Insider knowledge from the experts of the business.
CIMBRIA

THE POWER OF OPTICAL SORTING: WHAT YOU NEED TO KNOW TO TRANSFORM YOUR BUSINESS.

The optical sorting technology has revolutionized the way materials are sorted and classified.

By using a set of cameras connected to sophisticated algorithms, optical sorters can quickly and accurately identify, and separate materials based on their color, shape, size, and chemical characteristics. This allows businesses to achieve higher levels of efficiency, accuracy, and consistency in their sorting processes, leading **to improved productivity, reduced waste, and increased profitability**.

Optical sorting technology surpasses mechanical sorting by identifying elements **based on color and composition, in addition to shape, weight, and size**. As such, optical sorting presents numerous advantages and represents a game-changing technology across a wide range of industries. By leveraging optical sorting, businesses can gain a competitive advantage in their respective sectors, achieving greater efficiency and success in the long-term.

THE ADVANTAGES

IMPROVED SORTING ACCURACY

1 Optical sorting technology is highly precise and can accurately identify and sort the elements based on their composition, size, shape, and color. This results in great sorting accuracy and reduces the risk of errors and waste.

INCREASED EFFICIENCY

2 Optical sorters can sort thousands of items per minute, making the sorting process incredibly faster and more efficient than other sorting methods. This saves time and labor costs for businesses.

GREATER VERSATILITY

3 Optical sorters can handle a wide range of materials, including food, plastics, metals, minerals, and more. This versatility makes optical sorting a valuable tool for businesses in a variety of industries.

CUSTOM QUALITY

4 Optical sorting technology offers a range of different models that can be tailored to meet the specific sorting tasks of each business. The set of cameras can also be customized to achieve even higher levels of accuracy and efficiency. By selecting the optimal optical sorting machine and customizing it to specific tasks, businesses can optimize their sorting process and gain a competitive advantage in their industry.

IMPROVED QUALITY CONTROL

5 Optical sorting technology can help businesses achieve a higher level of quality control by reducing the risk of errors, inconsistencies, and foreign object contamination in the sorting process. Optical sorters can accurately identify and eliminate foreign objects such as stones, glass, and plastics, thereby improving the safety and reliability of the final product. This leads to increased customer satisfaction and loyalty, as customers are more likely to trust and purchase products that are free from contaminants and defects.

REDUCED WASTE

6 Optical sorting enables each product to be allocated to a specific use, ensuring that not only high-quality products enter the production process, but also that separated materials can be directed towards their specific end-use. By sorting materials in this way, businesses can not only reduce waste, but also ensure that each material is utilized in the most efficient and effective way possible.

SORTING IN THE SEED, GRAIN, AND FOOD INDUSTRY

As the demand for high-quality, safe, and sustainable food products continues to grow, sorting technology has become an essential tool for businesses in the seed, grain, and food industries. Sorting technology offers numerous advantages in the food industry, including its ability to **identify and remove foreign bodies** from the product, such as stones, glass, and plastics. This feature not only improves the safety and reliability of the final product, but also reduces the risk of damage to downstream equipment and machinery, such as mills that require a pure product for processing.

In addition, optical sorters have the capability to **detect elements beyond the visible** spectrum, detecting the chemical nature of even the smallest elements and, in turn, distinguishing invisible contaminants like bacteria, fungi, and mycotoxins. Advanced optical sorting systems are essential for the detection and removal of these harmful substances, making it possible to ensure food safety and healthy crops throughout the global food supply chain.

SEED SORTING

Optical sorters can detect and remove damaged, diseased, or undersized seeds, ensuring a consistent and high-quality product for planting. This can help to **increase crop yields and reduce the spread of diseases**. Additionally, optical sorting is used to separate seeds of different species or varieties, based on their specific characteristics.

GRAIN SORTING

In the grain industry, optical sorting is used to remove foreign material, such as stones, sticks, and other debris, as well as damaged or discolored kernels. This results in a cleaner and higher-quality product for further processing or consumption. The use of optical sorters in traditional mills is **to modernize the cleaning and quality control process**. In gluten-free mills it is an indispensable element.

FOOD PROCESSING

Optical sorting plays a crucial role in the food processing industry, where it is used to inspect and sort a wide range of products, including coffee, beans, nuts and cereals. By detecting and removing foreign materials, defects, and contaminants, optical sorters help **ensure food safety** and quality standards are met.

SORTING IN THE PLASTIC INDUSTRY

The importance of a circular economy in achieving a more sustainable future cannot be overstated. One of the biggest challenges in this effort is the proper management and recycling of plastic waste. Fortunately, optical sorting technology has emerged as a powerful tool in this endeavor, offering the ability to differentiate plastic flakes and separate them accordingly.

Optical sorting technology plays a critical role in the **processing of recovered and recycled plastics by separating them by color and polymer**. The ultimate goal is to obtain high-quality plastics that are free from contaminants. With the aid of the technology, all plastics can be easily separated by color and polymer, while contaminants are removed.

By separating plastic streams into homogeneous fractions, optical sorting technology enables the recycling of all types of plastic, not just clear plastic, giving new life to the entire product and **moving towards a zero-waste plastic production**.

RECYCLING AND WASTE MANAGEMENT

Managing waste and recycling materials is essential for sustainability. Optical sorting can be used to separate and recover valuable materials from food waste streams, such as plastics, metals, and glass, helping businesses reduce their environmental impact.

A REVOLUTIONARY VISION SYSTEM

RGBN VISION SYSTEM

An RGBN vision system uses cameras that detect visible light in the red, green and blue wavelength ranges and simultaneously offer control in one or more frequencies in the infrared range. Some key points of RGBN vision:

- Uses **beyond the visible wavelengths** of light that humans can see, combined with the Near Infrared allows the most complete visual control of the object to be inspected.
- Employs **high-definition color cameras**, able to capture color images that provide information about the color, hue saturation and brightness of elements. This allows for very accurate and subtle differences.
- Provides high precision and accuracy for sorting. It can sort with **over 99,8% accuracy** and very low impurity levels.
- Detects imperfections, contaminants, grade, ripeness, species, etc. based on color. Some of the attributes it can sort by include size, shape, color, surface texture and subtle surface alterations.
- It uses advanced algorithms and Artificial Intelligence for analysis. It can identify anomalies, provide quality grades and trigger reject mechanisms.
- It can combine UV or InGaAs additional inspection systems to provide specific or sophisticated selections. This ensures **consistent optical detection** across the entire field of view.
- It is suitable for sorting **a wide range of products** including coffee, beans, grains, nuts, seeds, pet food, pharmaceuticals, etc. Common applications include sorting by ripeness, removing defects, grading by size or color, sorting contaminants, species identification, etc.

SUPERIOR PRODUCT SORTING

SWIR/NIR CAMERAS

SWIR and NIR stand for Short-Wave Infrared and Near-Infrared. These are vision systems that use infrared cameras to detect elements based on their infrared light emissions or reflections. SWIR and NIR machine vision provides unique benefits due to using infrared light. Some key points of SWIR/NIR vision digit:

- Uses infrared wavelengths, just beyond the visible light spectrum. It can **see through surfaces and detect the inner composition of products**.
- Can achieve very high precision for sorting by composition and quality. They can remove defective, overripe or underripe products with **over 99,8% accuracy**.
- Uses LED lights that emit light in the SWIR/NIR spectrum. These specialized lights allow the cameras to detect the attributes of interest. Normal visible light will not allow the cameras to capture these attributes.
- The SWIR/NIR algorithms analyze spectral signatures to characterize materials and make sorting decisions. They can **detect even subtle composition variations** between similar looking products.
- Every element has its own “infrared” signature. This makes SWIR/NIR useful for food, recycling, and other applications where there is a need of selecting the elements having the same color by their chemical nature.
- Additional features like RGB and shape visions systems can be integrated for **multi-attribute sorting based on both color/shape composition as well as physical properties**.

BEYOND THE VISIBLE

SEA.IQ

SET UP YOUR TRIAL >

HIGH ACCURACY

SEA.IQ is the Cimbria's most innovative optical sorter. It uses an advanced set of cameras, which can be set to your exact specifications. Offering the highest accuracy with extreme sorting precision.

ADVANCED PERFORMANCE

SEA.IQ comes standard with RGB full-colour cameras and integrated NIR (Near Infrared). Add optional SWIR/INGAAS and UV cameras to easily process a wide range of material, from the smallest seeds to plastics for recycling.

USER-FRIENDLY INTERFACE

The user-friendly interface, with its intuitive touch screen and easy-to-use software, simplifies the sorting process and can be customized for the way you work.

MORE THAN FULL COLOR

SEA.CX

SET UP YOUR TRIAL >

MULTI-SPECTRAL RGB TECHNOLOGY

SEA.CX is the perfect solution when the slightest differences in grain colour makes a big difference to the end result. It uses multi-spectral RGB technology to detect and remove every single grain that doesn't match your recipe.

ADVANCED EJECTION SYSTEM

Rapid firing ejectors are extremely precise to reject non-conforming material and preserve your profitability. Accepted or rejected product can be conveyed to additional sections and undergo multiple passes to ensure the highest quality.

COMPACT DESIGN

The compact design is easy to clean, maintain and is available with up to seven chutes, making it ideal for smaller production or high volume.

HYPER PERFORMANCE

SEA.HY

SET UP YOUR TRIAL >

EFFICIENT MECHANICAL DESIGN

Pressurized and temperature-controlled optical boxes preserve cameras from dust and help maintain proper working conditions.

FOOD APPLICATION AND RECYCLING INDUSTRY

SEA.HY is ideal for food sorting applications and is a global leading solution for the recycling industry. SEA.HY excels at processing because its hyperspectral near-infrared cameras precisely identify and sort elements from 2 to 30 mm. According to their chimical compositions.

INFRARED TECHNOLOGY

The advanced IR spectrometry sensors recognize differences in materials based on their unique chemical makeup. This extremely accurate selection process detects the specific spectral properties on the relevant elements. Allowing SEA.HY to go beyond visual and identify elements by their chemical nature.

HIGH-TECH MADE SIMPLE

SEA.TN

SET UP YOUR TRIAL >

AFFORDABLE PERFORMANCE

SEA.TN features full-colour RGBN smart cameras with 0.06 millimeter optical resolution and a powerful image processing system that compares each object to your pre-set parameters – it's innovation that gives you the best results.

FLEXIBLE AND ADAPTABLE

A complete set of automated functions and available options, like the multiple in-feed system, makes SEA.TN flexible enough to handle a wide range of products and complex environmental tasks. And its various configurations ensure processing efficiency, even if you're sorting a variety of materials on a regular basis.

ENERGY EFFICIENCY

SEA.TN offers the right balance between precision and volume and includes an operating system designed to maximize energy efficiency.


TEST YOUR TOUGHEST CHALLENGE
To succeed, you need a partner who understands your business and offers expert advice every step of the way. We've been doing that for over 75 years. And as a global pioneer in optical sorting, we understand the unique challenges of your industry. Let our team of experts work with you to tailor a system to your exact needs. So, you can achieve your goals with confidence.
Put us to the test and send us your toughest challenge, we are ready to get the solution you need. For more information WRITE US >
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