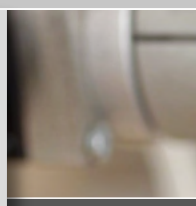

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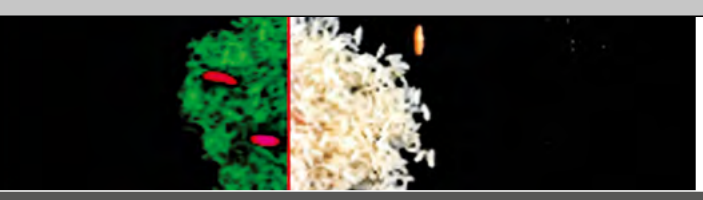
INDUSTRIAL IMAGE PROCESSING

Hyperspectral imaging offers a wide range of entirely new imaging application possibilities

Identification of material differences and conformities based on their chemical composition



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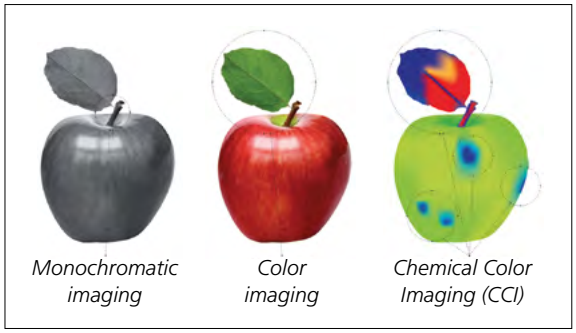
Hyperspectral cameras significantly extend the range of traditional imaging applications

Hyperspectral imaging extends the application range of grayscale and color cameras.

Hyperspectral cameras record over 100 different wavelengths, covering a much broader color spectrum from UV to infrared light. The ability to capture infrared light enables the unique identification of specific material signatures or "material fingerprinting". As a result, materials can be clearly identified and classified based on their chemical composition.

In addition, new technologies, such as hyperspectral imaging assist in complying with new or changing industrial requirements. They significantly speed up analyses, enable repeatable measurements and use durable components that withstand even harsh industrial conditions.

While conventional camera technology is used to optimize and shorten automated production and maintenance processes and increase the quality, productivity and safety of production-related manual and visual inspection and measurement tasks, there are certain industries where grayscale or color cameras simply can't achieve the desired results, for example, when it comes to visually differentiating substances with seemingly identical colors or textures.



Monochromatic imaging | *Color imaging* | *Chemical Color Imaging (CCI)*

Chemical Color Imaging creates a visual representation of molecular structure of materials. During testing, the degree of alteration of different testing samples can be visualized using hyperspectral analysis.

SUITABLE FOR A WIDE VARIETY OF INDUSTRIAL APPLICATIONS

Wherever a detailed material analyses cannot be achieved by using conventional image processing systems, hyperspectral imaging offers an entire range of new possibilities:

Areas of application:

- Food industry
- Automotive industry
- Pharmaceutical industry
- Recycling industry
- Woodworking industry
- Mining industry

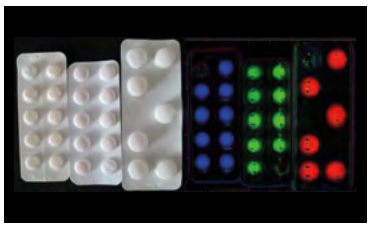
The examples listed above are only a few industries that benefit from hyperspectral imaging.

PSI Technics specializes in offering custom solutions for complex problems. Contact us today to learn more about our hyperspectral imaging portfolio.

Automotive industry

Hyperspectral imaging helps to precisely identify changes in material structure and enable the unmistakable identification of coating damages or contaminations. Different plastics such as PVC, PETE, PP and PS can reliably be inspected with this method.

Pharmaceutical industry

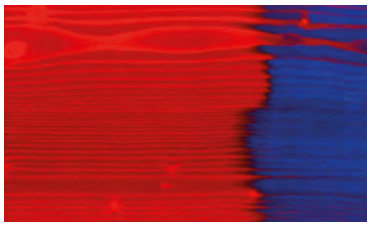


Pharmaceutical agents that seem almost identical to the human eye can have distinctly different properties. Hyperspectral analysis enables a clear distinction of those agents based on their chemical composition.

Recycling industry

The efficiency and productivity of recycling processes can be increased by automatically sorting or filtering out materials using hyperspectral imaging methods.

Woodworking industry

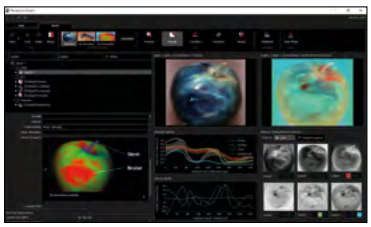


Humidity can have a significant impact on the quality of wood. Hyperspectral imaging is used to measure the moisture content and to increase product quality.

Mining industry

Camera technology has proven especially beneficial for process tasks in demanding work environments. Hyperspectral imaging can also be used in the mining industry to differentiate between and identify different minerals and types of rock.

Food industry



Organic substances, particularly water, lipids or proteins, can be easily distinguished using Chemical Color Imaging (CCI). The composition of meat products, for example, can be measured using hyperspectral imaging without touching or destroying meat samples. The same method can be applied to identify unripe, overripe or spoiled food in the food industry.

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INDUSTRIAL IMAGE PROCESSING

PSI Technics offers innovative solutions

We constantly thrive to develop innovative solutions to expand the application range of industrial image processing and to empower our customers to implement innovative new projects. Hyperspectral imaging enables you to handle a variety of novel testing and measurement tasks that allow you to strategically position your business for the future.

When developing tailor-made solutions, we focus on individual support and a close cooperation with our customers. Our highly professional approach is guaranteed to deliver the best possible results. We leverage the experience obtained from working with renowned companies in various industries to gain deep insight into our customers' industrial processes in order to fulfill the most demanding requirements.

Creative engineering and a wealth of experience with a broad range of hardware and software systems enable us to offer smart solutions that are tailored to your needs. We provide you with expert advice, custom design and service, as well as all required hardware and software components – from a single source.

Our application engineers and technicians advise and assist you and use their extensive expertise to leverage the development process for optimizing processes and solutions.

You, too, can benefit from becoming a PSI Technics partner – we continuously work to provide you with the safest, most efficient and optimized solutions for your business.

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PSI TECHNICS' HYPERSPECTRAL IMAGING SERVICE PORTFOLIO

- **Live demonstrations:** A live demonstration illustrates the application results and potential benefits
- **Feasibility studies:** We are using specialized hardware and matching software to perform detailed feasibility studies.
- **Spectral analyses:** We analyze the spectral properties of objects in both the visible and the infrared light spectrum.
- **Image processing integration:** If desired, we integrate a custom image processing solution into your production processes following a thorough on-site evaluation.
- **We assist you every step of the way** – from initial feasibility studies to developing and implementing custom solutions for production processes.

Would you like to receive additional information on how to make your processes more efficient.

info@psi-technics.com

PSI Technics GmbH

support@psi-technics.com
www.psi-technics.com/E

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