About **(DIR)**

DIR Technologies utilizes sophisticated infra-red detectors and thermal imaging technology combined with high throughput imaging & analysis software, to provide innovative solutions for the quality control and process monitoring of pharmaceutical manufacturing and packaging processes

Advantages of DIR's technology

- Nondestructive, noninterfering
- In-line, Real-Time, 100% testing
- Very small foot-print, adaptable to any existing production line
- Can be customized to a wide variety of packaging processes
- No slowdown of production

Contact us for additional Information
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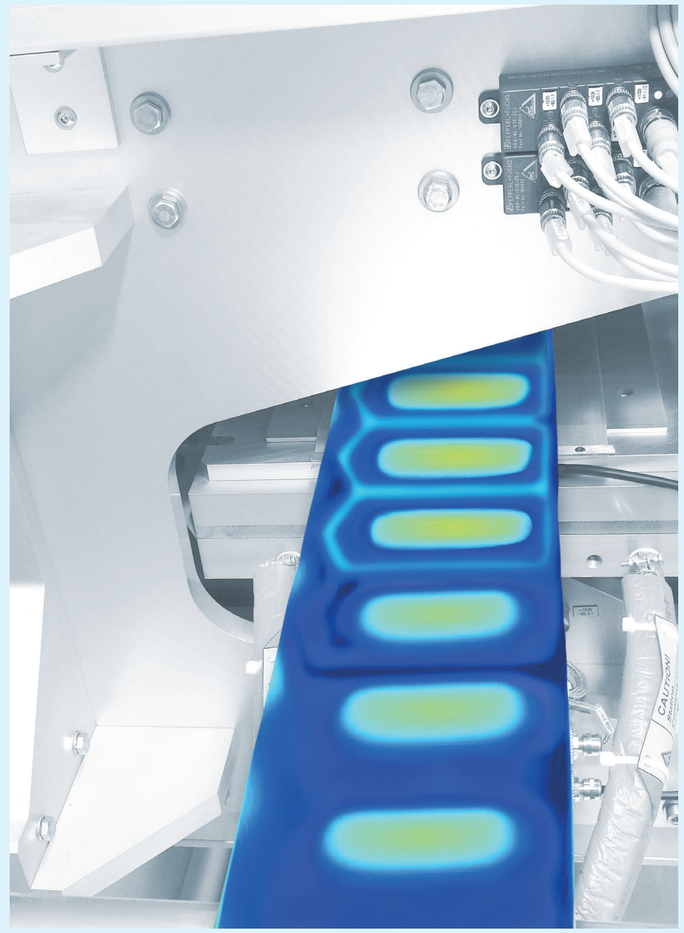
PACKAGE INTEGRITY



DIR Technologies

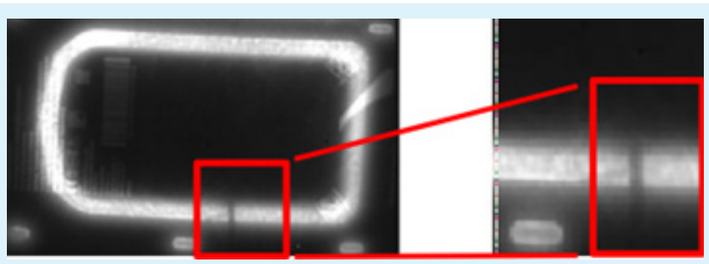
PACKAGE INTEGRITY

DIR **Technologies** provides comprehensive thermography based **Solutions** for in-line **Quality** control and process monitoring of pharmaceutical and medical devices packaging lines

In the pharmaceutical industry, the package is of crucial importance as it fulfills several functions, such as maintaining sterility and hermetic closure to keep out moisture and oxygen. Generally speaking, the package must be able to keep its original properties for the shelf life of the product after undergoing the rigors of manufacture, transportation, storage, handling and aging.

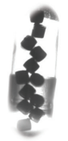
The traditional approach to package integrity testing in the pharmaceutical industry is based on sampling. This is partly because real time 100% testing solutions were not available, or result in a considerable slowdown of production. Leak tests or standard machine vision are limited in performance and can provide only partial solutions

DIR Technologies techniques, based on Dynamic Thermography, have proven to be effective for fast, **real time, 100%** monitoring of a variety of pharmaceutical packaging processes.

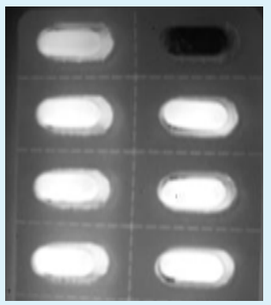


Channel in Poly-Tyvek pouch sealing

8 **blue** placebo minitablets (265 mg)



12 **pink** placebo minitablets (263 mg)



Missing tablet in blister

Thermal imaging has many intrinsic advantages for testing the integrity of the packaging, notably

- It can see through most of the plastic materials commonly used in pharmaceutical products.
- Many packaging processes involve heating, that makes Thermal Imaging an advantageous monitoring tool.

CCD image of capsules with minitablets

Examples of problems addressed by DIR include

- Sealing integrity and process monitoring of induction sealed bottles
- Sealing integrity and process monitoring of heat sealed sachets, pouches and blisters
- Blister integrity
- Missing tablets / wrong tablets in blisters
- Bottle content monitoring
- Capsule content monitoring
- Foreign objects in bottles or blisters

SEALING **INTEGRITY** →	**HEAT SEALING** →	Blisters / Sachet / Pouches
	INDUCTION SEALING →	HDPE Containers
CONTENT **INSPECTION** →	**HDPE CONTAINERS** →	Fill level / Desiccants counting Foreign objects inspection.
	SACHETS & POUCHES →	Fill level
	CAPSULES →	Fill level / Content