

Infrared Technology for Print and Paper
Intelligent solutions for efficient and modern processes

Books, brochures, labels, forms, foils or packaging are printed using various processes. However, all these processes have the same requirement that the ink must be totally dried or cured before the printed material is stacked, cut, folded or processed further. Dependent on the type of ink, UV or IR emitters are used for drying and curing. By necessity, this is very much connected with energy consumption. Today, it is always worthwhile to have a good look at these processes and to look for techniques which provide the optimum results at the best possible energy efficiency.

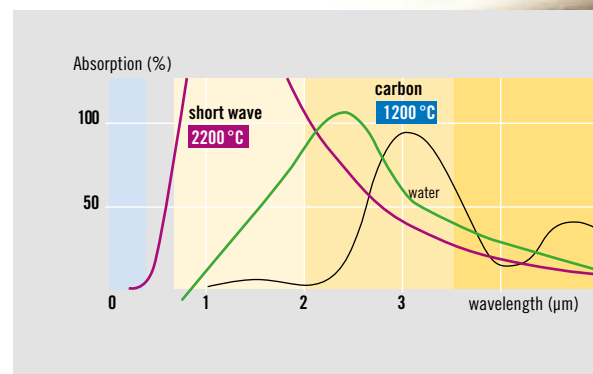
Heraeus Noblelight offers speciality light sources which are precisely matched to the properties of the coating to be dried. For more than 30 years, Heraeus has supplied infrared emitters to the graphics industry.

Experience Pays

Serviettes with flexographic printing, brochures with offset litho, screen printing for publicity materials or glass in cars, different materials are printed in different ways. Heraeus has decades of experience with all conventional printing techniques.

The correct wavelength

The wavelength of the infrared radiation has a significant influence on the drying process. Short wave radiation is more energetic and penetrates deeper. Therefore, a safe drying at higher thicknesses of inks or coatings is possible. Medium wave radiation is very easily absorbed into water and then converted directly into heat. The carbon emitter was developed by Heraeus precisely for the medium wavelength range. All Carbon infrared CIR© combine effective medium wave radiation with high power densities and accelerate the drying of aqueous inks and lacquers at high efficiency. Extensive tests have shown that carbon emitter dry water-soluble lacquers significantly more efficiently than short wave infrared emitters. A carbon infrared emitter requires up to 30% less energy for drying than a conventional, short wave emitter.

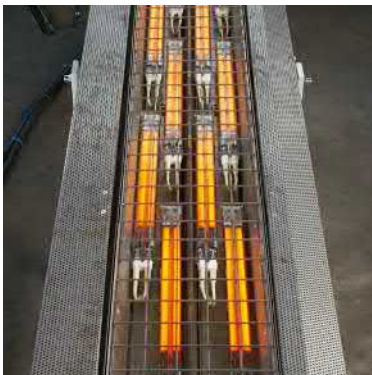




In-line drying of flexo print



Flexoprinting with Carbon emitters



Printing on corrugated paper

The Hybrid Emitter

The hybrid emitter combines a medium wave carbon emitter with a short wave infrared emitter in a quartz glass twin tube. This unique combination allows infrared to be used in applications which need infrared heat at the surface as well as in the deeper layers. As a result, heat is distributed homogeneously and efficiently, which saves energy.



Infrared Heat for Efficient Printing – no matter which procedure

Whether classic printing processes or modern digital printing - the ink must be dried as quickly as possible to keep pace with the printing.

With water-based inks, much can be gained with a simple drying system change. If a Heraeus Carbon Infrared (CIR) system is used to replace a dryer fitted with short wave emitters operating in the near infrared (NIR) region then, very often, the full capacity of high-speed print heads can be best achieved.

Other printing inks absorb short-wave infrared radiation best and through the matching infrared system in the printing machine, print speed and print quality can be increased.

No matter whether packaging printing, Book on Demand, Invoices that need a printed code or address in a field, photo display or truck tarpaulin, infrared emitters dry all prints quickly and efficiently.



Personalised mailings



Printing of parking tickets



Print on promotional materials



Infradry

Infradry systems from Heraeus Noblelight make printing and coating applications significantly more efficient, as infrared emitters work in conjunction with a specially developed air management system. This reduces energy consumption and drying time.

Infradry systems are available in different versions. Contact us!



Glueing, treatment and much more

Many finishing stages are connected with a heating process in the manufacture or treatment of paper or corrugated board and even for the glueing of printed items. Infrared radiation helps to promote efficient drying, curing or adhesive activation.



Coating of corrugated board



Coating of paper for medical purposes



Anti-slip coating on paper tray mats



In-line glueing of printed material

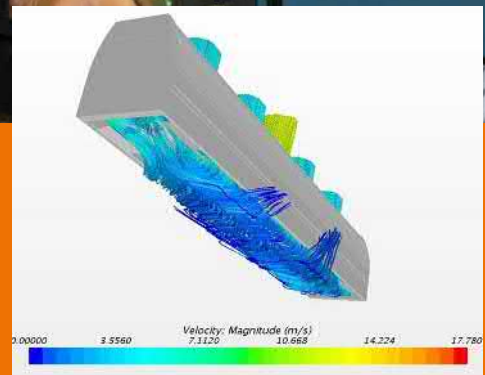
Checked, Tested and Proven

Heraeus Noblelight offers infrared emitters for the industrial sector, which are precisely matched to the product and process. This helps to increase production speed, improve quality and, not least, reduce costs.

Heraeus has been supplying infrared emitters to the graphics industry for the past 30 years. Working with printing machine and dryer manufacturers, new market requirements are analysed and new emitters developed. Customers can be offered tailored component solutions to meet specific requirements or focussed development projects can be carried out. Users also receive support in implementing the results within energy-efficient dryer concepts for the future. This implementation helps to save electrical energy, increase machine speed and expand the range/process window of the dryer system.

Modern numerical methods

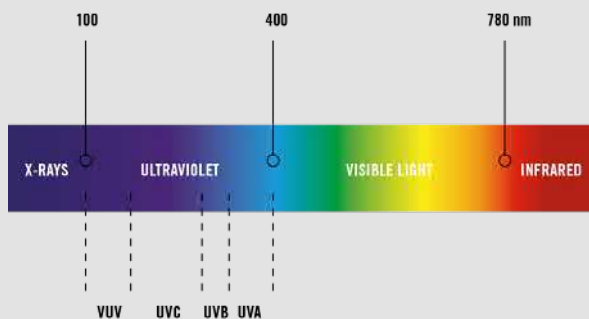
Tests at our in-house Application Centre or on site have been carried out for many years to analyse the heating process. Previously, the data built up over decades and held in our data banks were more than sufficient for initial assessments. Today, modern numerical methods are available. Ray tracing and Computational Fluid Dynamics are very valuable methods used, for example, to optimise the homogeneity of heating of surfaces or to minimise edge zone losses. Modern numerical methods can help to keep down development expenditure and hence overall costs.



Air management is optimized in IR systems with the help of computer-aided methods (CFD)

**The incredible power of light ®
Photonics-based solutions from ultraviolet to infrared**

Heraeus Noblelight covers the total spectrum of technically usable wavelengths and can help find the optimum light system solution to suit specific processes. Whether you wish to optimize existing applications or win new markets, we offer efficient, well thought-out and long-life solutions that give you a lasting competitive advantage.



Heraeus Noblelight is part of the Heraeus technology group, a globally active family-owned enterprise. Within the Heraeus group, we have direct access to fundamental technologies and high-quality materials such as quartz glass, important precious metals and specialty materials. Rely on the acknowledged Heraeus quality!



Infrared emitters and systems for industrial heating processes.

With a wealth of experience encompassing more than 3000 different heating processes, we can match our emitters precisely to meet your needs in terms of spectrum, power, length and shape.



Make use of the intelligence of infrared technology.

In contrast to conventional thermal processes, infrared transmits large amounts of energy in a short time. This heat is used exactly where it is required and only for as long as it is required for a particular process. This offers energy savings of up to 50 %.



Profit from Heraeus quality

– the proven twin tube design – contoured emitters, which are shaped to match the geometry of your work piece – the new QRC® emitter, with its nano reflector for stable heating processes under aggressive ambient conditions. Convince yourself personally in our Application Centers.

Make use of our expertise and experience to optimize your production process and realize real competitive advantage.

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