

High-intensity UV light for Disinfection of packaging materials
Heraeus Noblelight's Premium UV module



The UV Process Technology Division of Heraeus Noblelight (business group specialty light sources) specializes in the design and manufacture of UV lamps and equipment. For many years the innovation leader, we realize UV process solutions and manufacture several hundred thousand UV lamps each year. Over 90 % of these are designed to customer specific requirements.

Benefit from our expertise. You can work closely with our product specialists and R&D experts to optimize your applications. You have easy access to our in-house Applications Competence Center (ACC) and the capabilities of one of the most modern, independent UV measurement laboratories in the lamp industry. Our experience means we certify the reliability of our UV units.

Profit from the renowned Heraeus quality. Unrivalled, stable UV efficiencies over the complete lamp operating life, which guarantees you maximum productivity at minimum operating cost.

Moreover we are the leading manufacturer of UV curing and metal halide lamps for the printing industry and varnishing processes. Over 8,000 lamp specifications in smallest lots are available; our 200 % testing ensures your optimum reliability and machine uptime. Obtain our UV lamps worldwide through our distribution network.

The tradition of manufacturing special light sources goes back to 1904 when Heraeus invented the UV lamp, and the 1950s, when the company paved the way for infrared technology. Today, Heraeus Noblelight employs over 700 staff and runs its own subsidiaries in many countries worldwide.

High-performance UV modules for the food industry

Microbiologically sensitive bulk products such as foodstuffs demand hygienic packaging materials. Practical applications include filling and sealing machines for dairy products and beverages. UV radiation reliably disinfects dairy product cups of various shapes, heat sealing or tubular films, lids and caps or the necks of bottles. This greatly extends the products' storage life thus reducing the number of returns of food that has gone bad. Manufacturers benefit by saving time, effort and money.

Heraeus Noblelight's innovative Premium UV module has up to 3 times the output of standard modules enhancing the disinfection effect on packaging by the more rapid destruction of bacteria. It is mainly used for packaging of fresh products in paste or liquid form stored along the cold chain, such as yoghurt, curd cheese, milk, etc.

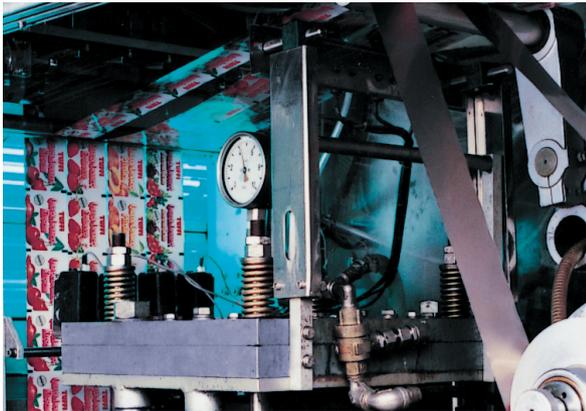
Compared to chemical and thermal methods, UV radiation treatment is a very reliable and economically efficient method and can be used in continuous operation on filling lines. Ultraviolet light at wavelengths around 254 nm destroys the DNA of all microorganisms. If used properly, it takes seconds to deactivate viruses and kill microorganisms such as bacteria, yeasts and fungi in an environmentally friendly manner because no extra chemicals are needed. Heraeus Premium UV modules reduce the number of surface germs by up to 99.9 %.

The UV lamp is the only consumable. Its service life is rated at 12,000 operating hours or, assuming 24 hours of operation, 2 years of effective use. During that time, the Premium UV module can disinfect about 86 million cups. Breaking down the initial capital expenditure to a single cup would result a lot less than one Euro cent per cup.



Premium UV module for filling and sealing machines

Heraeus offers a new and powerful Premium UV module for UV disinfection specially designed for food industry applications. A new generation of lamps produces high intensities and warrants a long service life. This high intensity system allows customers to use fewer modules reducing service requirements and overall costs. Apart from these economic benefits, Premium UV modules are marked by their ease of installation and operation. Thanks to the breakage detector on the cassette window, the modules are able to operate safely on the production line.



A patented quick start solution for reduced warm-up times and operating costs is sold separately as an option. Although the UV cassettes generate a high irradiance, the UV light as such is cold. Therefore, the packaging material is not heated. The disinfection method is thus perfectly suited to heat-sensitive materials such as plastic cups or heat sealing film. Due to their geometry, Premium UV modules are particularly well adapted to in-line filling machines with 4 to 12 rows of cups.

Safer at enhanced intensity – benefits at a glance

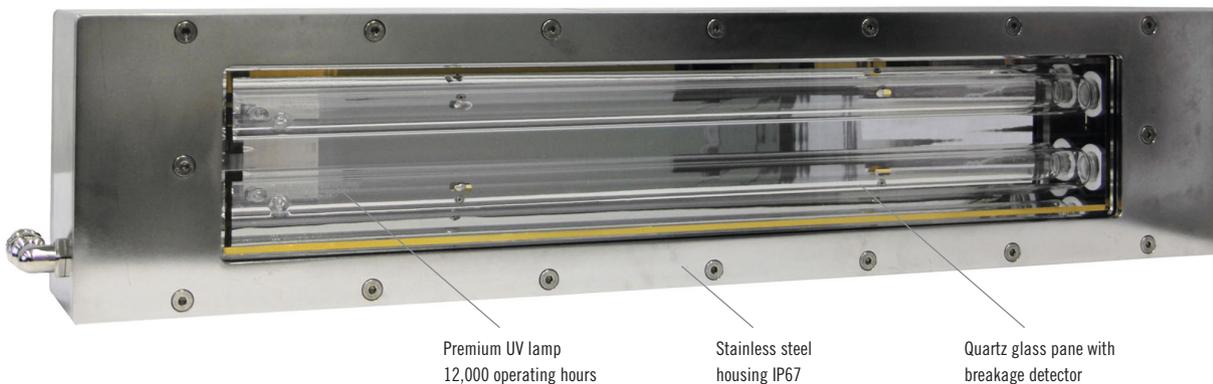
The new Premium UV module for the highest level of safety at low costs:

Safety aspects:

- Integrates into your HACCP concept: automatic monitoring of the integrity of the quartz glass, temperature and emitter function
- Intensive cold UV radiation does not heat up the packaging material
- Emergency stop function turns off the UV lamp while still providing uninterrupted cooling
- Fit for CIP (cleaning in place)
- Due to its IP67 protection rating, the Premium UV module is perfectly safe to use in humid or moist environments
- Shielding of the UV can be achieved by transparent plastic covers (such as Makrolon). Heraeus offer the facility to test plastics to determine their suitability as UV absorbers.
- Environmentally friendly as no additional chemicals are required

Optimised costs:

- Short exposure time (1 to 4 seconds) for reduced operating costs
- Very short warm-up time of approx. 5 minutes (30 seconds if the quick start feature is installed),
- Low-maintenance costs for improved economic efficiency
- Easy handling; can be retrofitted in existing filling and sealing lines
- Investment of 0.03 Euro cent per cup based on 2 years of 24hr operation



Premium UV module features

- Compact – the module requires very little space
- Electronic ballasts and the ventilator share the same media box for ease of retrofitting
- Modular toolkit design: 1–3 UV cassettes can be connected to a single media box
- Air not water-cooled; the ventilator in the media box sufficiently cools up to three Premium UV cassettes
- Equipped with a service hour meter and an On/Off indicator
- 2 × 180–264 V / 50/60Hz connectors
- Package includes: Premium UV cassette and media box with power supply, service hour meter, forced ventilation/air cooling and 4 air hoses
- Premium UV modules are available in 3 standard sizes:

Technical Data

Premium UV module	P 2036/1	P 2062/1	P 2087/1
Total length of UV cassette (170 mm wide / 110 mm high)	560 mm	780 mm	1060 mm
Size of radiation window (width × length)	111 × 367 mm	111 × 617 mm	111 × 867 mm
Electrical output	370 W	480 W	670 W
UV cassette weight	16 kg	20 kg	27 kg
UVC intensity at	20 mm distance: 65 mW/cm ² 100 mm distance: 33 mW/cm ² 200 mm distance: 17 mW/cm ²		

The stainless steel media box has been EMC tested and can be operated anywhere in the world where a 50/60 Hertz power supply is available. After a brief warm-up time of approximately 5 minutes (30 seconds), the Premium UV module by Heraeus reaches its full radiation power. No extra precautions required for switching on and off.

How to choose the correct Premium UV module variant

Cups, heat sealing films or sealing boards require different exposure times

Cups:

- Approximately 4 seconds* of exposure, depending on height of cup
- It may be enough to illuminate every first and third cycle, for example

Films:

- Films require around 2 seconds* of exposure
- Boards are preliminarily disinfected and also exposed for only around 2 seconds*
- Leave at least 20 mm between the UV module and the film

The appropriate Premium UV module variant also depends on the dispensing/feeding length as well as on the microorganism to be killed. Bacteria, for example, need a higher lethal UV dose than mould. Please ask our UV application experts for assistance with adapting the variant to your filling line.

*No guarantee/all data reflects test results obtained under laboratory conditions.

Try before you buy – contact our module rental service

Heraeus supplies modules which you can rent for on-site testing in your line. This is meant to help you assess the type and number of Premium UV modules required for your own process of disinfecting packaging materials.



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