

Heraeus



**No more unpleasant aroma in your kitchen**  
**Efficient odor and grease reduction with UV**  
Heraeus UV Control System for exhaust air treatment

# Odor reduction with Heraeus UV solutions

## Highly efficient and energy saving

The use of fats and oils, particularly in large kitchens, leads to unpleasant odors and deposits in canopies and ductwork. Grease filters remove only up to 95% of the fat carried along in the exhaust air flow. The remaining fat is deposited inside the hood or exhaust duct, creating a high fire risk, which no grease filter is able to completely eliminate.

Heraeus Noblelight, a manufacturer of specialty light sources, offers vacuum UV (VUV) lamp solutions for the secondary treatment of aerosols and aerosolates in kitchen exhaust hoods. Heraeus vacuum UV lamps, in the wavelength range of 185 nm, photolyze, neutralize and destroy the molecules of fats and odors.

At the same time, the vacuum UV radiation produces ozone from the oxygen in the air of the lamp. This subsequently decays into excited oxygen, which has a sustained oxidizing effect in the ductwork, and keeps the duct clean, thereby minimizing cleaning and service costs.

High-performance VUV lamp solutions from Heraeus Noblelight remain extremely effective even at ambient temperatures of up to 80° C. Their long service life of up to 10,000 operating hours<sup>1</sup> minimizes the service intervals. Instead of a cassette with 4—6 low-pressure emitters, only one single vacuum UV lamp is now required.

<sup>1</sup> 80% of the original UV output measured under laboratory conditions



### Process Benefits

- No danger of fire caused by grease deposits – the process offers the best possible fire protection for kitchen exhaust systems
- Due to germ and grease reduction, heat recovery stays absolutely efficient
- No, or at least very few, recurring cleaning costs
- Reduction of residual grease
- No emission problems, so that official regulations can be complied with or achieved
- Better hygiene through germ reduction
- Significant reduction in downtime of kitchens due to very fast servicing
- Environmental relief through odor removal

The Heraeus UV Control System (UVCS) retrofit set is designed and produced to suit specific projects. The correct installation and commissioning of the system is in accordance with the requirements of DIN 18869-7 Appendix A, “Operation of UV systems for Aerosol and Aerosolate treatment”. Furthermore, the components are UL Compliant and the control unit is UL Certified.

### Recommended areas of application

Heraeus Noblelight offers complete sets and solutions for easy installation. VUV is a retrofit set for easy installation in new or existing fume removal hoods, in canteens and commercial kitchens, and can be used in different areas of application:

- Canteens and restaurant kitchens
- Front cooking stations
- Mobile event cooking
- Grill stations
- Fast Food restaurants
- Fish and meat processing
- Bakeries
- Coffee roasters

### Advantages of the Heraeus UV Control System

- **Space-saving:** 1 lamp instead of the common UV lamp cassette with 4–6 low-pressure lamps
- **Long service life:** up to 10,000 h minimizes the service intervals
- **Extremely effective:** even at ambient temperatures of up to 80° C
- **Simple handling:** only 1 power supply and 2 spring clamps per lamp are required
- **Easy installation:** lamp is installed directly in the hood; power supply and control units are mounted externally
- **Independent systems:** by suitable reserve of the release contacts within the control system, two separate installations can be operated independently of each other.
- **Cleaning:** lamp can be easily wiped down with a damp cloth
- **Safety:** No plug connections in the exhaust stream, which could cause voltage flashovers
- **Reduces fire risk of ducts**

### What is supplied

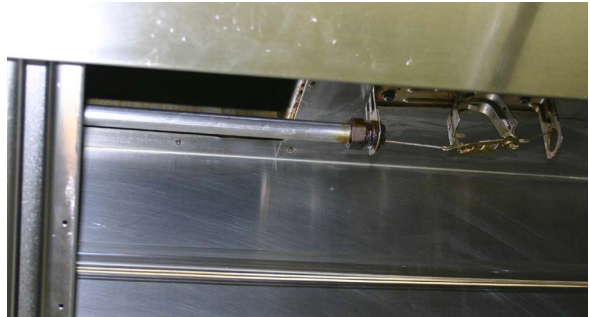
- The UV control system comprises the components necessary for safe and reliable operation:
- VUV lamps for the specific application
  - Stainless steel holders for installing the emitters
  - Air pressure sensor and magnetic switch
  - A sophisticated electronic control system, including a cabinet with protection for dust and humidity



### UV Control System (UVCS): a system for all kitchen sizes

	Heraeus UVCS 4.220 A1 UL	Heraeus UVCS 8.220 A1 UL
<b>Air flow rate</b>	< 8,000 m <sup>3</sup> / h = 4,700 cfm	< 16,000 m <sup>3</sup> / h = 10,000 cfm
<b>Number of lamps</b>	2—4	2—8
<b>Recommended lamp</b>	NIQ 170/90 XL UL	NIQ 200/120 XL UL
<b>Electrical consumption</b>	950 W	2,000 W
<b>Cable length to lamp</b>	30 m	30 m
<b>Ambient temperature</b>	< 35° C	< 35° C
<b>Size</b>	600 x 800 x 250 mm	760 x 760 x 300 mm
<b>Protection class</b>	IP 54	IP 54
<b>SAP Ident No.</b>	80134336	80134337

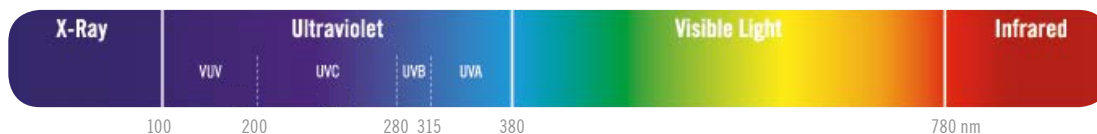
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Kitchen hood exhaust air duct at Heraeus: before (left) and 3,000 h after (right) the installation of a Heraeus UV solution.

## Degradation of odors, greases and VOCs

High-energy UV photons are able to disrupt problematic bonds by photocleavage and break them down into environmentally tolerable components. Vacuum UV radiation at a wavelength of 185 nm breaks down long-chain molecules by direct photolysis. This is the same process that nature uses to clean emissions from the atmosphere. UV oxidation is instrumental, for example, in breaking down fats and odors in kitchen extraction hoods, for the reduction of harmful materials in industrial waste air, for the cleaning of waste water and for surface cleaning.



## General and safety-related notes

UV lamps should be installed only by an electrician, based on the Heraeus Noblelight installation and operations manual. The number of UV lamps depends on exhaust air volumes, the type of cuisine (vegetable/animal, cooking/grilling) and the level of use of the kitchen (fat load/fat type). Canopies or grease filters fitted with UV lamps must be specially marked. Warning sign W 09 "Beware of optical rays" in accordance with BGV A8 must be attached.

Installation instructions must be read. Standard DIN 18869-7, Annex A, regulates the operation of UV systems for aerosol and aerosolate treatment in kitchens and in the food-processing industry. Annex A 6.4, with notes about protection against UV radiation, must be particularly heeded and observed.



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