

Diversey 

F&B



**Aurora**

UV Disinfection Systems



## Aurora UV- Disinfectant Systems

Would it not be great if hygiene protection could be continuous? Even during production?

Aurora from Diversey Food Care introduces continuous disinfection enabling increased shelf life for your product.

Aurora combines Ultraviolet light technology with specially designed equipment to enable its safe use in processed food environments.

UV technology has been used widely in water treatment applications for many years, Aurora is based on the same principles but provides solutions for air and surface disinfection.

- Safe to use for your product, process and operators
- No waste
- No damage to the environment
- Free of chemicals
- Low maintenance
- Shatterproof lamps
- Lamp life counter

Read on to find out more about the principles of UV disinfection and how Aurora from Diversey Food Care can increase microbiological protection in your production environment.

### Definition of Aurora

Aurora is a glow in a planet's ionosphere caused by the interaction between the planet's magnetic field and charged particles from the Sun. Seen on Earth as a green and red glow near the poles.



FOOD  
SAFETY



SHELF LIFE  
EXTENSION



# Air and Surface Disinfection

## Air Disinfection

Aurora air disinfection provides better air quality in the production or storage environment, which has been proven to increase the shelf life of stored items, reduce odours and reduce bacteria proliferation. Two systems are available for air disinfection – ceiling bowels to be fitted in front of an existing fan, for example in a chiller unit, and the forced air tunnel systems that can be fitted inside existing air pipes or supplied with an incorporate a fan to circulate air flow.

### Applications include:

The installation of an air disinfection system can be carried out in almost any environment where improved air quality is beneficial. In the processed food environment the system can be used throughout the production area.

## Equipment



## Surface Disinfection

Aurora UV units are suspended over the area is to be disinfected. For food manufacturing applications, shatterproof UV lamps can be used to avoid any accidental breakages.

### Applications include:

- Transport – conveyor belt disinfection, ensuring continuous protection
- Packaging – disinfect closures or the external of the pack before storage
- Utensils – disinfection of knives and other utensils used in the production environment

## Forced air tunnel

Air flow rates: from 40 to 450 m<sup>3</sup>/h

### Applications include:

- Easy to install
- Available in lightweight plastic and satinated stainless steel
- Lamps can be changed easily (drawer system)
- Lamps can be delivered with protective layer (HACCP and IFS standard)
- High hygiene quality during production
- Hygienic design with shatterproof lamps

## Ceiling bowels

Radiation (1m): from 1400 to 5600 mW/m<sup>2</sup>

- Easy to install
- Available in lightweight plastic and satinated stainless steel
- Lamps can be changed easily (drawer system)
- Lamps can be delivered with protective layer (HACCP and IFS standard)
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## Conveyor belt unit

- Adjustable in size to fit different conveyor dimensions
- Removable tray with lamps for easy dismantling during cleaning operations
- Above or below conveyor installation (requires a “free from food” area of the conveyor to ensure effective irradiation of the belt, but not directly on to food)

# Case Study

## Increasing meat shelf life with UV Air Treatment

UV air disinfection technology was installed in the storage chiller room at a meat processing plant for an 11 day period. The system relied on natural air convection within the room to treat the air with UV radiation.

### Organoleptic results:

- After 11 days, meat samples which were not stored in the chiller with UV air disinfection showed a change in colour, odour and became viscous to the touch.
- The samples from the chiller with UV air disinfection retained colour, did not have an odour and remained drier

### Analytical results:

- The meat samples showed a substantial difference in bacterial content, the table below shows the results with and without UV air disinfection

### Conclusion:

The results achieved have shown that UV air treatment can reduce the CFU tcount by 97.5%, generating an improved shelf life for the product that was stored in the UV treated chiller room. Full details of the trial are available on request.



Forced Air Tunnel



With UV



Without UV

Parameter	Reference Standard	Results without UV	Results with UV
Coliformi at 30°C	ISO 4832 : 2006	160 ufc/g	< 10 ufc/g
Staphylococcus aureus	UNI EN ISO 6888-1 : 2004	< 10 ufc/g	< 10 ufc/g
Colonies at 30°C	UNI EN ISO 4833 : 2004	2,9 x 10 <sup>4</sup> ufc/g	700 ufc/g
Listeria monocytogenes	UNI EN ISO 11290-1 : 2005	absent/g	absent/g
Salmonella Spp.	UNI EN ISO 6579 : 2008	absent/25g	absent/25g



# How it Works

## Air Disinfection

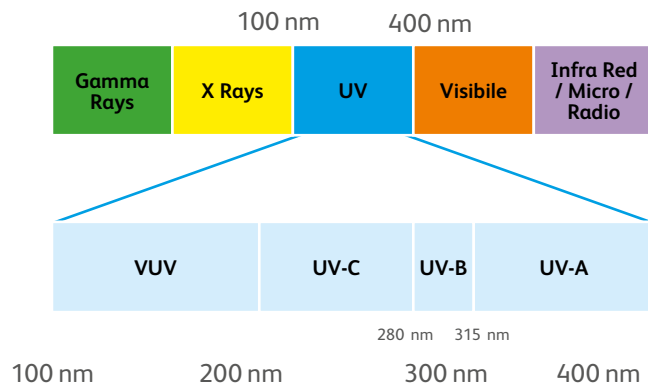
Louis Pasteur, regarded as one of the three founders of microbiology, wrote about the disinfecting capabilities of sunlight in the 1800s.

It was further discovered that it is the UV spectrum that has disinfectant properties, specifically UV-C which has a wavelength between 100-280 nm.

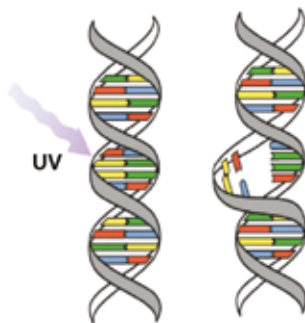
DNA and RNA are responsible for defining the reproduction of all forms of life. DNA and RNA absorb UV lights at wavelengths from 200 to 300 nm but the greatest absorption peaks at 254 nm.

Absorbed UV light induces 6 types of damages in the DNA (Setlow 1967). The most common damage on the DNA contributes to microorganisms inactivation= The microorganism cannot reproduce themselves.

## Light Spectrum



## UV action on DNA



Below: Custom UV disinfection system installed on an egg processing line. Custom systems are available to suit your production requirements.



Below: Forced Air tunnel installed in chilled storage room, reducing microorganism load on hams prior to slicing.





Diversey's purpose is to protect and care for people every day. Diversey has been, and always will be, a pioneer and facilitator for life. We constantly deliver revolutionary cleaning and hygiene technologies that provide total confidence to our customers across all of our global sectors, including: cleaning products, systems and services that efficiently integrate chemicals, machines and sustainability programs. This makes us unique among leading global hygiene and cleaning companies. Everything we do has our customers' needs at its heart and is based on the belief that cleaning and hygiene are life essentials. With over 95 years of expertise, we safeguard our customers' businesses, contributing to productivity improvements, lower total operating costs and brand protection.

Diversey is headquartered in Fort Mill, SC, USA.  
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