

Ultraviolet Technology

UV Disinfection In the Food & Dairy Industry

Hanovia
WORLD CLASS UV

How Does Ultraviolet Work?

Ultraviolet energy causes permanent inactivation of microorganisms by disrupting DNA (the reproductive material) so that it is no longer able to maintain metabolism or reproduce.

The maximum effectiveness occurs between 240 and 280 nm, depending on the organism. The Hanovia medium pressure Arc Tube produces these wavelengths in abundance. The most effective wavelength occurs at 265 nm.

Why do leading Food and Dairy manufacturers choose Hanovia UV?

UV disinfection now offers a viable alternative to conventional disinfection techniques for ensuring safe, microbe-free water, processing fluids and air in the food and dairy manufacturing industries.

Water containing high starch concentrations, transport water containing processing residues and process fluids such as syrups and brines can now be successfully treated using UV.

For air-borne contamination control, UV air disinfection systems have been developed which provide microbe-free air for sterile preparation areas. Disinfection of aseptic packaging and prepared foods can also be carried out using UV surface systems

Most efficient

- ▶ No microorganisms survive UV treatment
- ▶ Treatment is effectively monitored
- ▶ Permanent accurate treatment records are produced, so all batches can be traced. Ideal for ISO9000, BS5750 etc.
- ▶ UV is the most cost effective method of water disinfection

Superior to Alternatives

- ▶ Chlorine is often unacceptable because of flavour effects
- ▶ Sterile filtration does not remove all the spores from the water
- ▶ Pasteurisation is expensive in capital equipment and running costs
- ▶ UV is the most environmentally friendly way to reduce the number of viable organisms, without causing further pollution

No detrimental effects

- ▶ UV has no effect on pH, colour, flavour or aroma
- ▶ UV has no detrimental effect on product stability
- ▶ UV leaves no residue
- ▶ Overdosing is not possible

Safety

- ▶ No hazardous chemicals are required
- ▶ No toxic by-products are produced



Applications

Water supply

- ▶ Towns' water should be free from microorganisms. However, well-water may be contaminated and towns' water can pick up infection in the plant. EU laws require food and beverage water to be microbiologically pure.
- ▶ UV treatment of water stops all contamination at source
- ▶ UV permits reuse of water to improve availability and plant profitability, without risking the quality of the product

CIP Rinse Water

The final rinse water of the CIP is typically the purest source water available, but may contain microorganisms, which need to be inactivated. If chemical sterilants are used, solutions can be left in the pipework, tankers and tanks, where they mix with incoming product and may leave taint. UV treatment of the rinse water is better because:

- ▶ UV leaves no taint
- ▶ UV treatment of CIP rinse water is cost effective and safe
- ▶ UV is compatible with hot detergent
- ▶ UV is not affected by acid or alkali in cleaning fluid

Injection Brine & Cheese Whey

In the food and dairy processing plant disinfection of injection brine and cheese whey can now be successfully achieved using UV. The Hanovia UV-S product range incorporates a powerful UV Arc Tube and small bore treatment chamber to provide the necessary high UV dose required for effective treatment of these low transmission fluids.

Tank Headspace

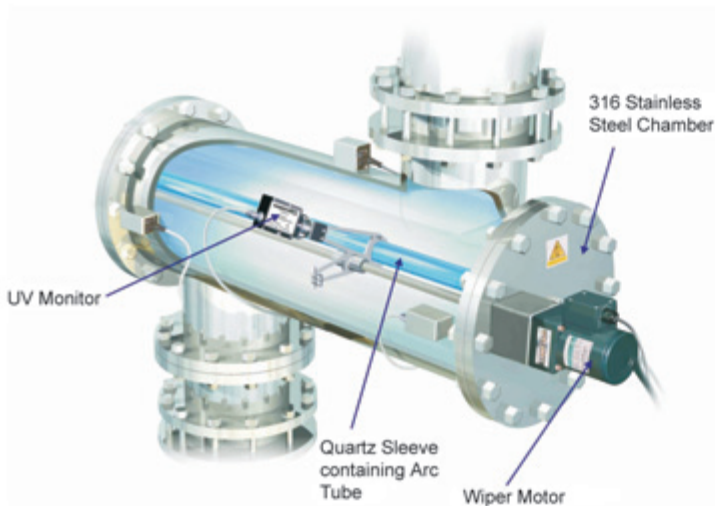
UV systems can be used to disinfect displacement air for pressurising tanks or pipelines holding perishable fluids or free flowing solids. Storage tanks are particularly susceptible to bacterial colonisation and contamination by air-borne spores. The Hanovia UV-I product range is designed to overcome this problem. The immersible UV treatment system has been designed to fit into the headspace and disinfect the air present.

Packaging

Treatment of interior surfaces of containers and tubs prior to packaging and filling can be effectively achieved with the new Hanovia surface disinfection system. High intensity UV enables this unit to achieve the required quality with a minimal contact time. This enables the unit to meet the most demanding requirements of high speed filling and packaging lines.

UV dose

The UV dose required for the plant should be decided in conjunction with a Hanovia specialist, who will also advise on installation.



Hanovia UV systems

Compact and Easy to install

- ▶ Conveniently fit into existing pipework and tanks in most process areas
- ▶ Minimum site preparation
- ▶ Pre-assembled units available pre-wired and skid mounted, requiring only connection to electrical supply
- ▶ Silent operation
- ▶ Can interface with most computer controlled continuous and batch processes

Inexpensive and simple to maintain

- ▶ No moving parts to maintain
- ▶ Simple and safe operation easily understood by operators
- ▶ Designed for remote operation
- ▶ Replacement of Arc Tubes is quick and simple
- ▶ Distributors worldwide maintain full range of spares

Rigorous Quality Control (ISO 9001)

- ▶ All Hanovia stainless steel chambers and Arc Tubes built to the highest possible standards
- ▶ Every Arc Tube is individually checked and each completed system tested and run before despatch
- ▶ Test certificates always supplied

All Hanovia Systems Include:

- ▶ 316L Stainless Steel Disinfection Chamber
- ▶ Arc Tube
- ▶ Control Unit/Power Supply Cabinet
- ▶ UV Monitor
- ▶ Automatic Cleaning Mechanism (optional)
- ▶ UV Transmittance Monitor (optional)



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