

BIO UV[®]
ULTRAVIOLET SOLUTIONS





THE COMPANY

BIO-UV, France's leading manufacturer of ultraviolet water treatment equipment and European leader in the private and public swimming pool and spa market, is a limited company created in May 2000.

On its production sites in Lunel (France) and Los Angeles (USA), the **BIO-UV Group** designs, manufactures and markets ultraviolet (UV-C) disinfection systems and concepts.

The management's experience in the field of medical equipment, water treatment and engineering enables the **Bio-UV Group** to provide state-of-the-art solutions thanks to the use of the finest materials and leading-edge technology in UV-C disinfection.

The relevance and competitiveness of the solutions proposed have enabled the **BIO-UV Group** to gain a place amongst the market leaders in just a few years, and to achieve annual growth in excess of 50% since its creation.

The **BIO-UV Group** currently has a workforce of 40 people and has three wholly-owned subsidiaries:

- **UV-Industry** ; design and manufacture
- **UVPS** : marketing in the drinking water treatment, sewage treatment and industrial application markets
- **DELTA UV** : manufacture and marketing in North America (USA and Canada)

The **BIO-UV Group** is active in markets such as:

- Water treatment for private and commercial pools and spas (specialist in chlorine-free solutions)
- Communal and domestic drinking water
- Legionnaire's disease prevention (air cooling towers, domestic hot water systems)
- Aquaculture, fish-farming, fish ponds
- Treatment of purified waste water,
- Water for industrial processes in all sectors and for all types of industrial use
- Industrial waste treatment
- ...

More than 40% of the **BIO-UV Group's** turnover involves exports to various continents

ENGINEERING OFFICE, RESEARCH AND DEVELOPMENT

Every day, **BIO-UV Group's** engineers study and find solutions to new requirements, with the capability of manufacturing specific reactors on request.

THE BIO-UV GROUP PROMISES:

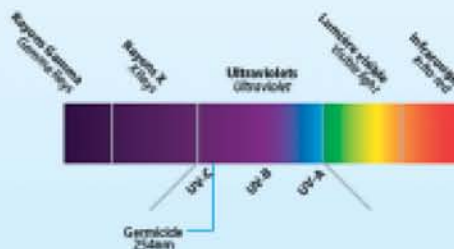
- Constant innovation in order to satisfy new requirements
- Efficiency and high performance solutions
- Reactivity and service
- Quality and reliability to meet the strictest requirements and deliver the best possible results



LIGHT THAT DISINFECTS

The sun emits an invisible light: ultraviolet rays. This natural phenomenon is reproduced inside the **BIO-UV Group's** ranges of reactors, using powerful lights incorporating the latest technology that emit **UV-C** rays.

At 254 nanometres, the optimum wavelength for destroying micro-organisms (viruses, bacteria, algae, yeasts, mould) **UV-C** light penetrates to the heart of DNA and disturbs the metabolism of the cells until they are totally destroyed. All the germs are thus inactivated (including legionella and cryptosporidium) and can no longer reproduce.



BACTERIA	UV C DOSES
Bacillus Anthracis	8,5 mj/cm ²
E.Coli	10,5 mj/cm ²
Legionella Pneumophila	6,9 mj/cm ²
Salmonella enteridis	9 mj/cm ²
Streptococcus Faecalis	10 mj/cm ²
ALGAE	
Chlorella vulgaris	22 mj/cm ²
PROTOZOA	
Cryptosporidium	16 mj/cm ²
VIRUSES	
Hepatitis	8 mj/cm ²

THE EFFECTIVE DOSE

The **UV** dose is equivalent to the **UV** energy that the living micro-organism has to absorb to be destroyed.

This table shows the **UV-C** dose levels (expressed in millijoules / mj) required to eradicate **99.9%** of the micro-organisms

THE ADVANTAGES

- A concept that avoids using chemicals (except in swimming pools and spas for remanence),
- Ecology and environmental protection,
- A physical principle: no by-products or overdosing,
- Possibility of using in combination with other types of treatment,
- Reasonable investment and maintenance costs,
- Simple to install

SCIENTIFIC PARTNERSHIPS

The **BIO-UV Group** maintains permanent partnerships with universities, laboratories and research centres in order to respond to specific problems, develop and validate optimum solutions.



APPLICATIONS

Disinfection by UV-C, a rapidly growing process, is today the most widely used physical method. This 250 million Euro market in 1998 will represent over 2 billion Euros by 2010, with the treatment of water, air, effluent, industrial processes, swimming pools and spas, etc.



■ COMMERCIAL POOLS AND SPAS

The power of the reactors/dechloraminators in the **BIO-UV MP and LP** multi-lamp ranges enables chloramines to be reduced by at least 50% with a very rapid return on investment due to savings in renewing water and improved environmental friendliness.

Treatment from 5 to 1000 m³/hour.

Result: healthier, more comfortable water and atmosphere.

Ranges approved by the French health ministry (11/2004)

■ PRIVATE POOLS AND SPAS

Ranges appropriate to each market able to treat from 5 to 100 m³/hour. Thanks to a patented chlorine-free concept, more than 1000 swimming pools or spas are already equipped.

■ FISH PONDS AND AQUARIUMS

Our ranges of sterilizers play a clarification role and guarantee healthy water for the health and observation of aquatic fauna and flora.

Treatment of from 0.5 to 500 m³/hour.

■ AQUACULTURE AND FISH FARMING

Our 316L stainless steel and HPPE ranges treat flows of 0.5 to 1000 m³/hour in all media (freshwater, seawater) and meet the requirements for intensive and professional use. Activities are managed safely and optimised.

THE RANGES

To date, several dozen types of sterilizers are produced by **BIO-UV**. In 316L stainless steel or HPPE, they are able to treat 0.2 to 2000 m³/hour.

Designed using state of the art lamps (low pressure - high intensity lamps, amalgam, medium pressure etc.) electronic ballasts, flux organisation, they guarantee optimum efficiency at the flow rates required for each range.





Various options are available:

- UV-C radiation measurement cell
- Monitoring of lamp intensity reduction with alarm
- Manual or automatic quartz cleaning systems
- Special inputs/outputs
- UV power regulation depending on the flow rate
- ...

APPLICATIONS

The **BIO-UV Group** is also present in the following fields:

■ DOMESTIC DRINKING WATER

*The **DBP range** treats 0.5 to 3.5 m³/hour of raw water for domestic use or mains water after dechlorination using active charcoal, efficiently and simply.*

■ PUBLIC DRINKING WATER (AEP)

*The **IAM range** treats 9 to 250 m³/hour or more and enables public authorities to treat water before mains distribution in maximum safety and using a minimum of chemicals.*

■ WATER FOR INDUSTRIAL PROCESSES

*The **IBP range** treats 3 to 100 m³/hour. Used by small local authorities and industries of all kinds (food, pharmaceutical, cosmetics etc.).*

The IBP sterilizers are also suitable for the recovery and treatment of rainwater.

■ PREVENTION OF LEGIONELLA

On air-cooling towers or domestic hot water systems, sterilizers appropriate to the flow rate and temperature enable systems to operate in safety.

■ WASTE WATER

Disinfection by UV enables purified waste water to be recycled into industrial water or for spraying, or enables the environment to be protected downstream of the station's discharge.

■ INDUSTRIAL EFFLUENT

Special reactors, associated in certain cases with catalysts, allow industrial effluent contaminated by organic pollutants (pesticides, aromatic compounds, TOC etc.) to be treated





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ZAC de la Petite Camargue • CS90022 • 34403 LUNEL Cedex • FRANCE

Tél : +33 (0)4 99 133 911 • Fax : +33 (0)4 99 133 919 • e-mail : info@bio-uv.com

www.bio-uv.com



**BIO-UV, Technical Partner of
the French Swimming Federation**