

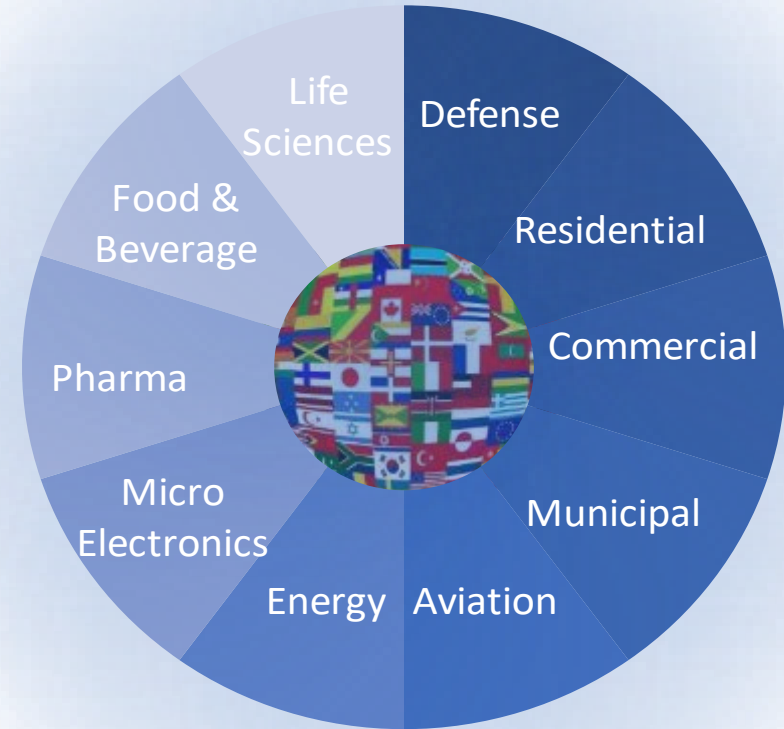
International Ultraviolet Association (IUVA)

- Founded in 1999
- IUVA is a not-for-profit, educational association
- Members: utilities, regulators, academicians, consulting engineers, manufacturers, and other interested professionals
- Members in 36 U.S. states and over 30 countries

Our Mission

- Provide a forum for the discussion of scientific and technical issues relating to the use of UV
- Develop a common voice for users & suppliers UV technologies
- Develop rational terms, units and nomenclature in UV technology
- Encourage research into the advancement of UV technologies
- Promote adoption of rational environmental regulations that consider the use of UV

UV Applications

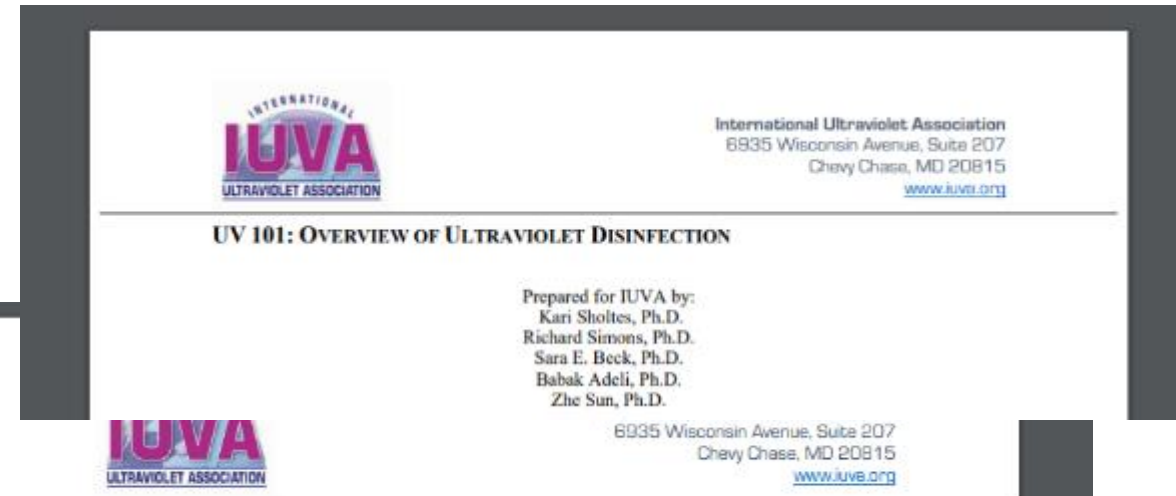


COVID 19 Specific Response

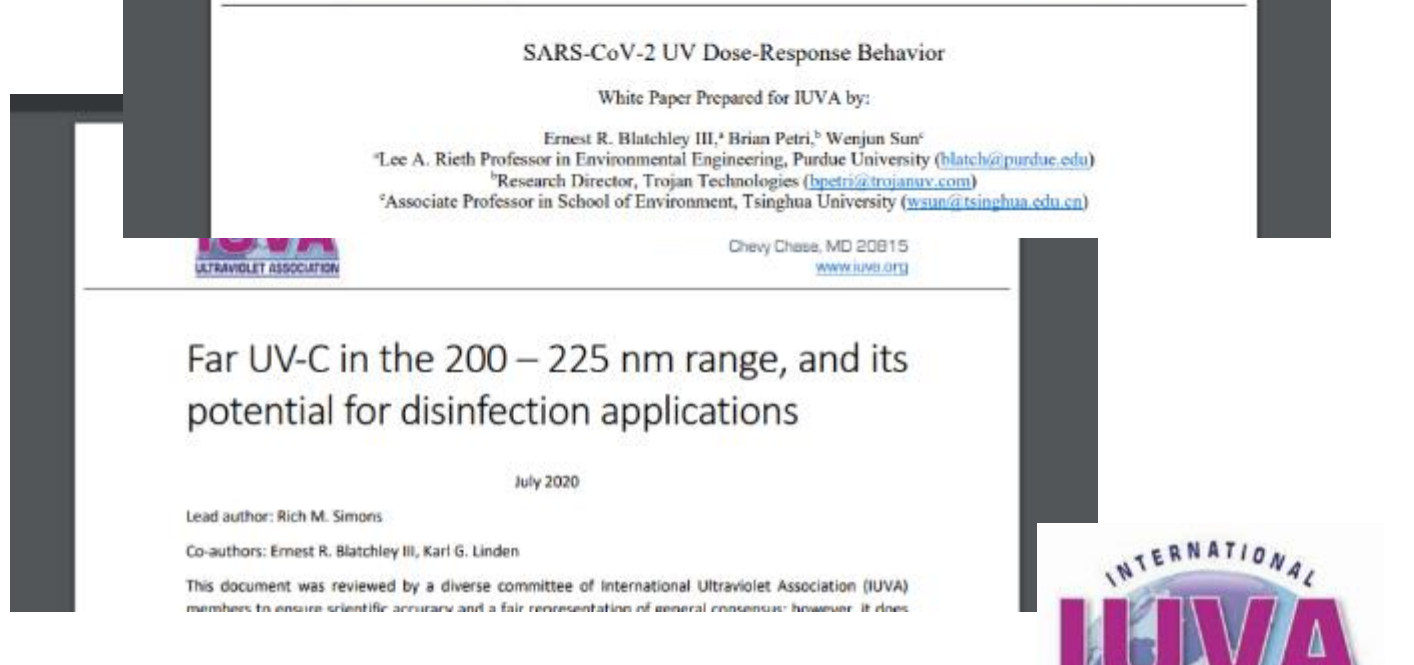
<https://iuva.org/IUVA-Fact-Sheet-on-UV-Disinfection-for-COVID-19>



The screenshot shows the IUVA website's COVID-19 FAQ page. At the top, there is a navigation bar with links for HOME, COVID-19, EVENTS, IUVA NEWS, UV SOLUTIONS, GUIDANCE DOCUMENTS, BUYER'S GUIDE, INDUSTRY ISSUES, and ABOUT US. A prominent banner features the text "CORONAVIRUS / COVID-19" and "IUVA UV Disinfection for COVID-19" over a background of blue virus particles. Below the banner, a purple box contains the text: "Advancing the sciences, engineering & applications of ultraviolet technologies to enhance the quality of human life & to protect the environment." The main content area is titled "IUVA COVID-19 FAQ" and includes a dropdown menu with the question "What is the UVC dose for killing or disabling the COVID-19 virus?". The selected question is expanded, showing the text: "Because the COVID-19 virus (SARS-CoV-2) is so new, the scientific community doesn't yet have a specific deactivation dosage. However, we know the dosage values for comparable viruses in the same SARS virus family are 10-20 mJ/cm² using direct UVC light at a wavelength of 254nm; this dosage will achieve 99.9% disinfection (i.e., inactivation) under controlled lab conditions. In real-life, the virus is often hidden or shaded from direct UVC light, reducing UVC's effectiveness. To compensate, researchers are applying dosages of 1,000 - 3,000 mJ/cm² to ensure 99.9% deactivation, the current CDC disinfection goal (see CDC's recently published guidelines online)." A purple button labeled "CDC's recently published guidelines" is positioned below the text. A sidebar menu on the right lists "MENU" with items: "IUVA COVID-19 FAQ", "Fact Sheet on UV Disinfection for COVID-19", "Advice for the selection and operation of equipment for the UV disinfection of air and surfaces", and "Discouraging the Use of UV Light on the Human Body". Below the menu is a "WHITE PAPERS" section with links to "UV 101: Overview of Ultraviolet Disinfection" and "SARS-CoV-2 UV Dose-Response Behavior".



The image shows the cover of the IUVA white paper titled "UV 101: OVERVIEW OF ULTRAVIOLET DISINFECTION". The IUVA logo is prominently displayed at the top left. The text "International Ultraviolet Association" and the address "6935 Wisconsin Avenue, Suite 207 Chevy Chase, MD 20815" are listed at the top right, along with the website "www.iuva.org". The title "UV 101: OVERVIEW OF ULTRAVIOLET DISINFECTION" is centered. Below the title, it states "Prepared for IUVA by:" followed by the names of the authors: Kari Sholtes, Ph.D., Richard Simons, Ph.D., Sara E. Beck, Ph.D., Babak Adeli, Ph.D., and Zhe Sun, Ph.D. The IUVA logo and address are repeated at the bottom of the cover.



The image shows the cover of the IUVA white paper titled "SARS-CoV-2 UV Dose-Response Behavior". The IUVA logo is at the top left. The text "Chevy Chase, MD 20815" and "www.iuva.org" is at the top right. The title "SARS-CoV-2 UV Dose-Response Behavior" is centered. Below the title, it says "White Paper Prepared for IUVA by:" followed by the authors: Ernest R. Blatchley III,^a Brian Petri,^b Wenjun Sun^c. Their affiliations are listed: ^aLee A. Rieth Professor in Environmental Engineering, Purdue University (blatch@purdue.edu), ^bResearch Director, Trojan Technologies (bpetri@trojanuv.com), and ^cAssociate Professor in School of Environment, Tsinghua University (wsun@tsinghua.edu.cn). The IUVA logo and address are repeated at the bottom.



Light-Sources: More than Just a Wavelength

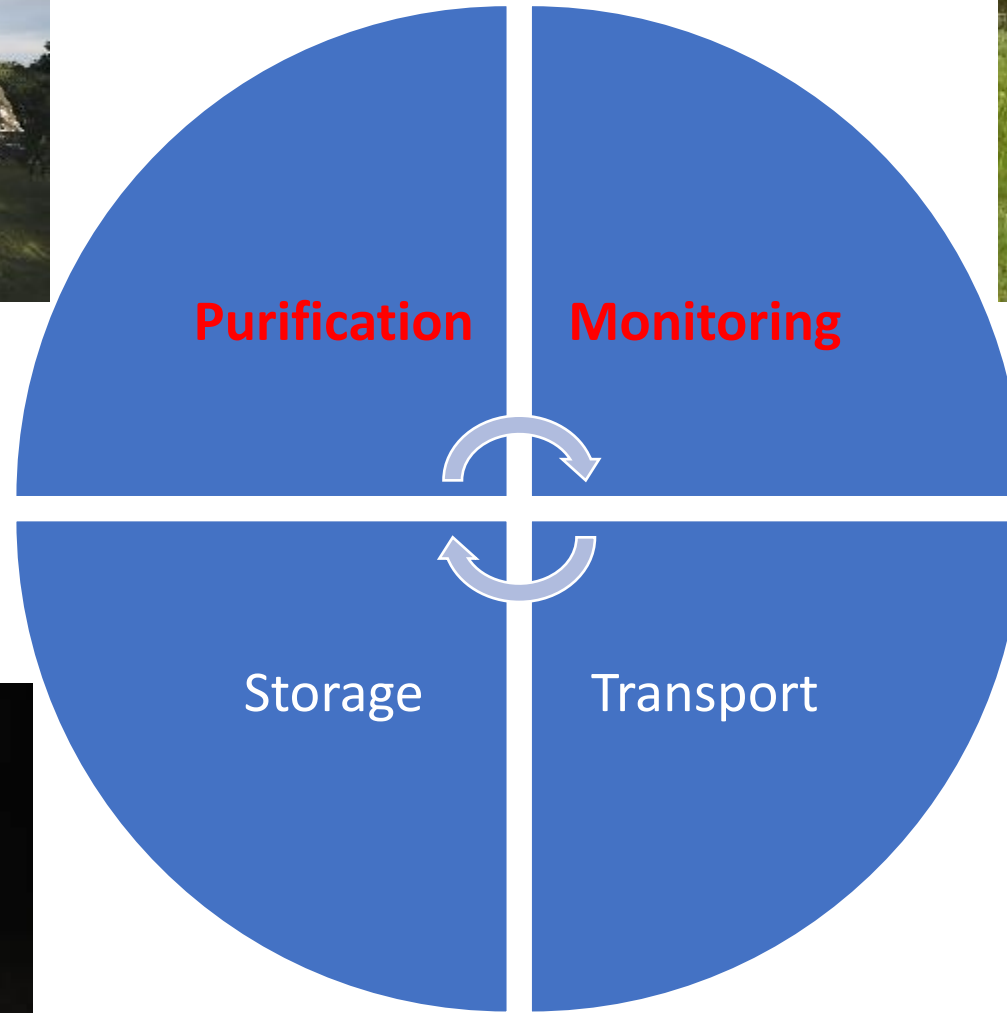
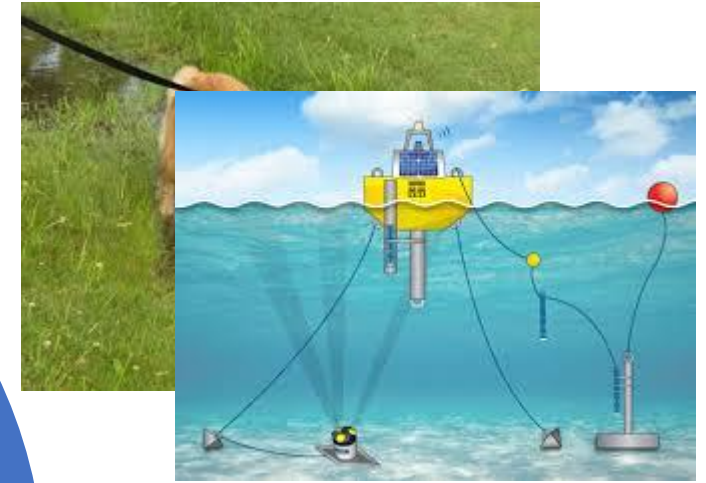
EPIC Online Technology Meeting
Water Quality Monitoring and Purification
In Cooperation with IUVA

9 November 2020



aquisense
technologies

Water Quality & Purification



Lamp Technology

Deuterium

Xenon

Mercury-Vapor
LP & MP

LED



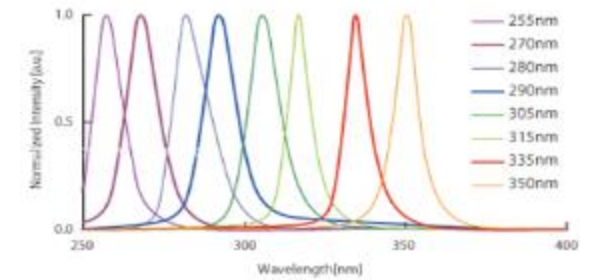
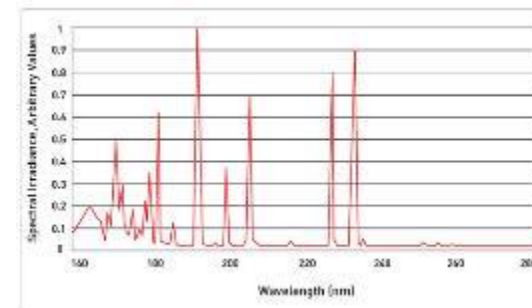
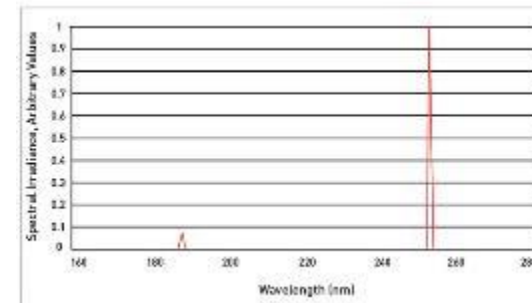
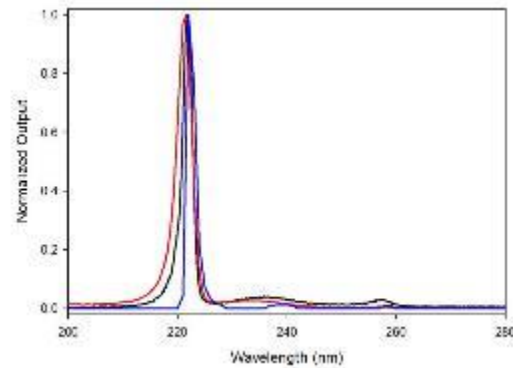
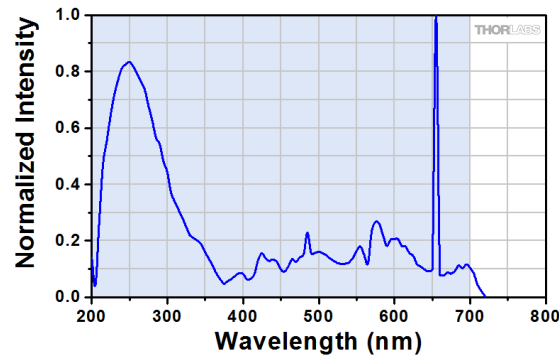
Lamp Technology

Deuterium

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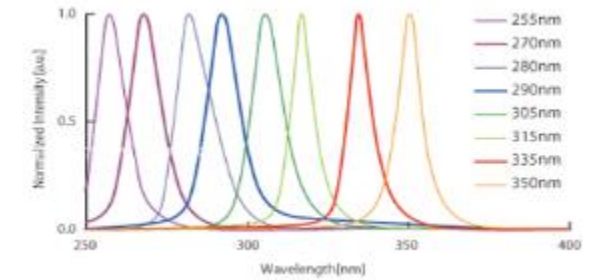
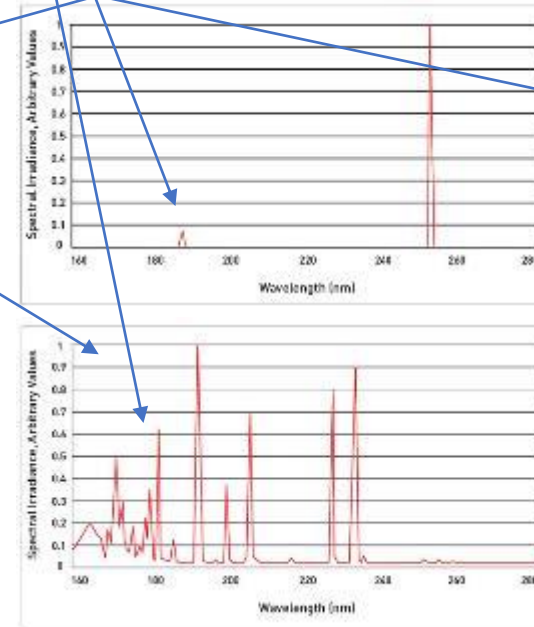
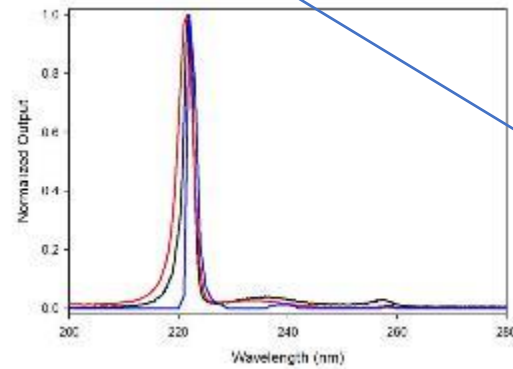
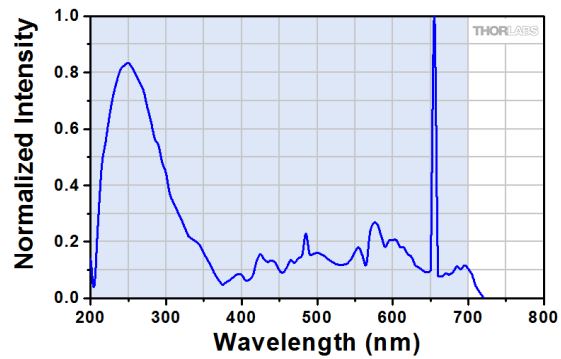


Application

Measurement

Ozone / Oxidation

Disinfection

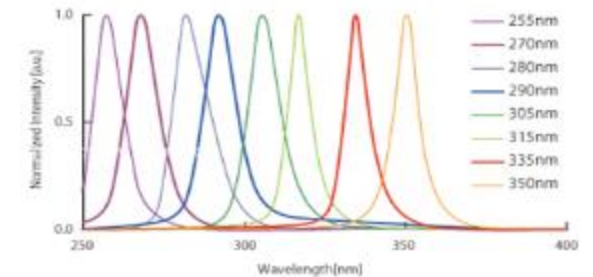
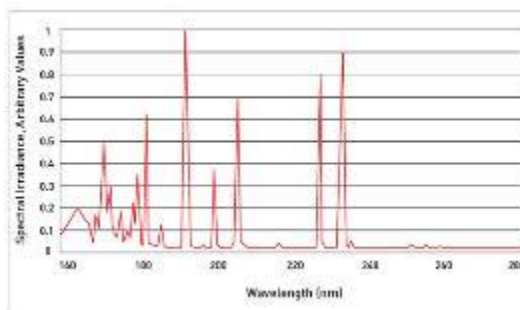
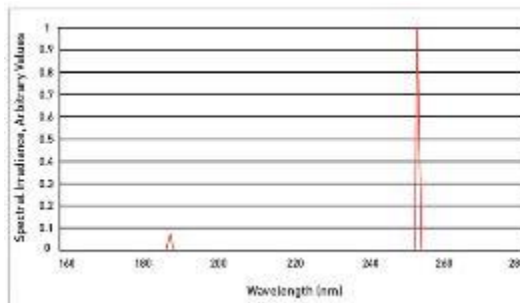
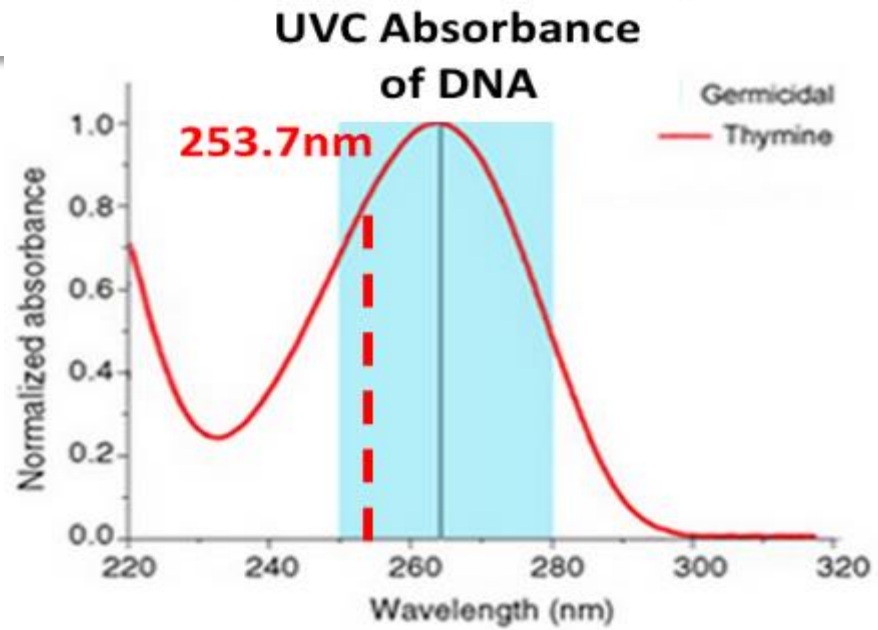
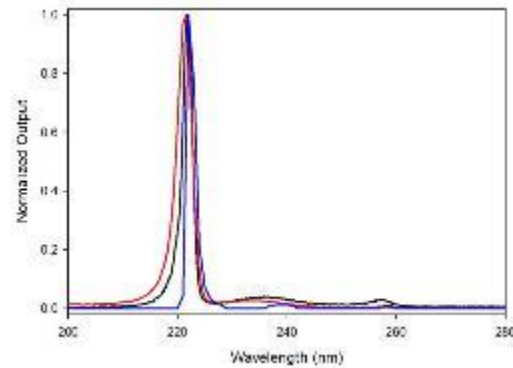
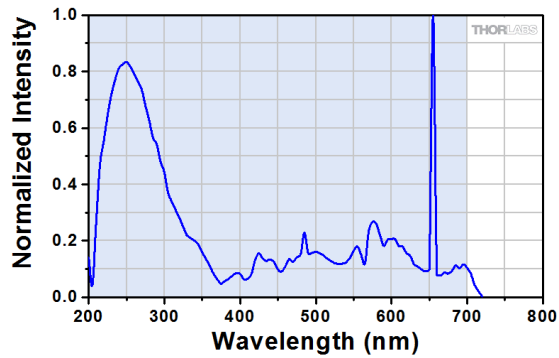


Application

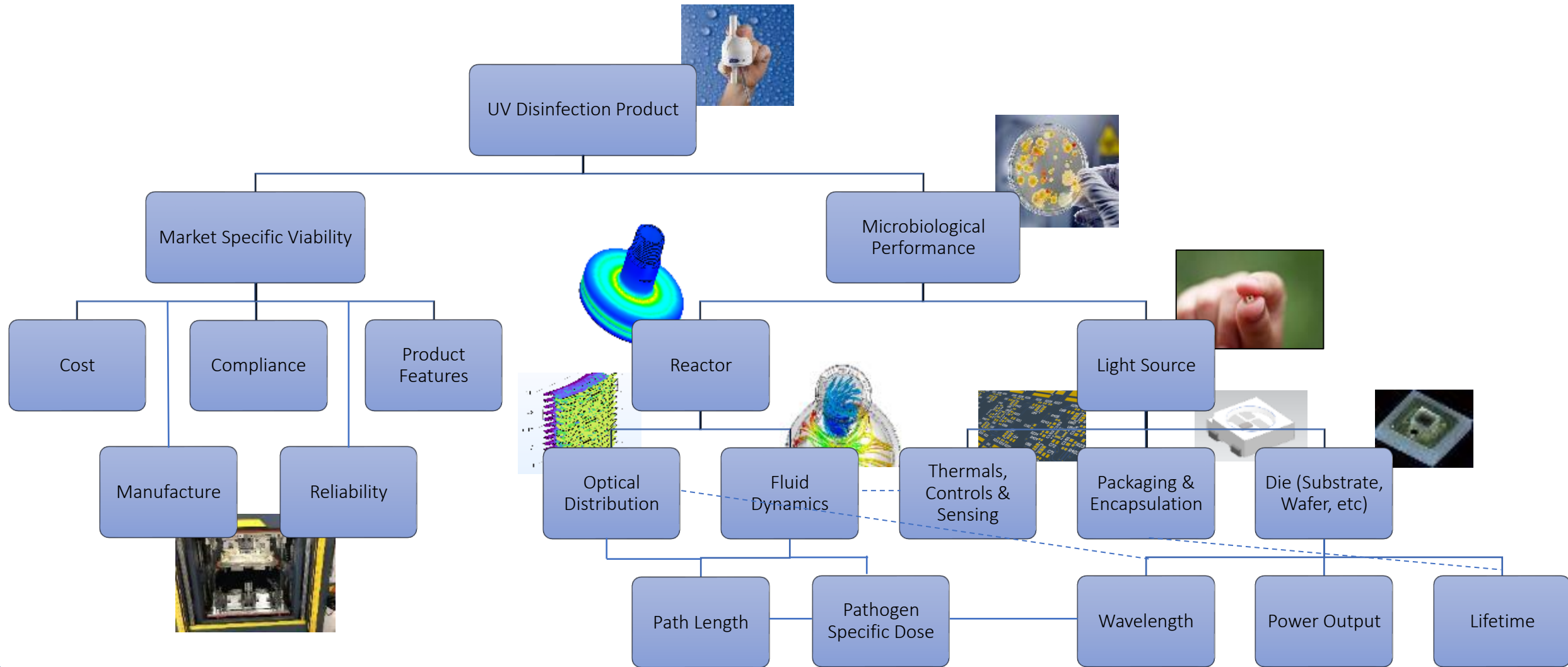
Disinfection

Selection made based on multiple factors

- Wavelength
- Cost
- Lifetime
- Efficiency
- Footprint
- Output power



More than Wavelength - Key Design Criteria



AquiSense Product Platform Overview

Stand-alone

- PearlAqua
- PearlAqua Deca
- PearlSurface



OEM Integration

- PearlAqua Micro
- Custom Variants



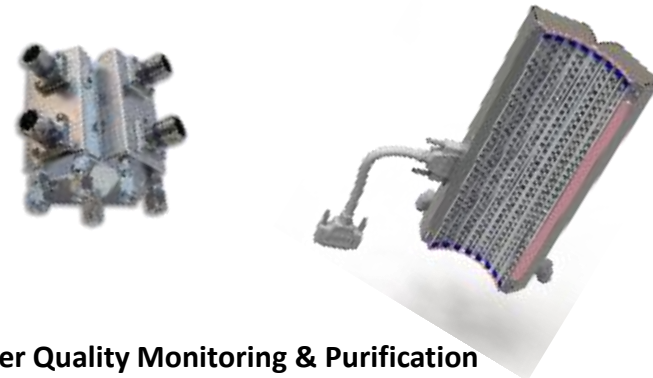
Research Products

- PearlBeam
- Others; LabMicro, Thin-Film



Special Projects

- Space, Aviation, Automotive, Oil & Gas, Microelectronics, Medical, etc



New Major Supply Contract

Company: Mitsubishi Electric Corp
Product: Eco Cute Heat Pump
Application: Water Reuse
Contract Start: August 2020

UV Product: Aquisense PearlAqua Micro
Criteria: Price, Performance, Quality, Volume

