"UV light is well known for its disinfection properties, but less well known is its ability to breakdown chemical compounds in a process known as photolysis".

CSL Behring is a global specialty biopharmaceutical company that develops, manufactures and markets therapies to prevent and treat serious human disease. It has manufacturing facilities in Switzerland, Germany, USA and Australia, where it is headquartered. As would be expected, it is critical that every part of the manufacturing process are in compliance with relevant safety and quality specifications and all applicable regulations.

Fluidquip Australia recently supplied and is currently in the process of commissioning five Hanovia ultraviolet light (UV) deozonation systems for CSL Behring’s newly constructed immunoglobulin manufacturing facility, located at Broadmeadows in the northern suburbs of Melbourne, Australia. As part of this manufacturing process, CSL Behring conditions incoming town water such that it is suitable for use within the facility. This water conditioning process sees the town water treated with a succession of filtration steps including microfiltration (MF) and reverse osmosis (RO). The resultant deionised water (WDI) is then sent to storage tanks from where it is distributed to a number of process loops. Prior to its distribution, the WDI is sanitised with ozone. Once sanitised, the WDI must then be deozonated prior to its final use. This is where the Hanovia UV systems come in. UV light is well known for its disinfection properties, but less well known is its ability to breakdown chemical compounds in a process known as "photolysis". In this case, the UV systems are able to effectively breakdown the ozone in the water thereby allowing the water to be used safely. The UV systems perform this function without adding any chemicals to the water - the entire process is completed solely by way of irradiation with UV light.

The first of the five Hanovia UV systems deozonates the WDI. The WDI is further treated by electro-deionisation (EDI) process to produce purified water (PW), which is then passed through a final ultrafiltration (UF) process to produce highly purified water (HPW). The PW and HPW are used for various purposes in the immunoglobulin plant, including as clean-in-place (CIP) rinse water. Prior to the water being used for its ultimate purpose, it is deozonated using one of the other four Hanovia UV systems installed within the facility. Importantly, some of the PW is destined for further treatment in preparation for its ultimate use as water for injection (WFI) - water that will literally be used in CSL Behring’s injectable biotherapies.

In supplying these systems, Fluidquip Australia (www.fluidquip.com.au) and Hanovia (www.hanovia.com) worked...
together in customising Hanovia's standard UV design in order to meet CSL Behring's specifications. Some of the necessary customisations included:

- Specially positioned and sized triclamp vents in roof of the UV chambers.
- Several different types of special triclamp connections fitted to the UV chambers' inlet and outlet ports.
- Specially configured UV intensity monitors that would allow the UV dose to be calculated within the CSL Behring control system rather than in the proprietary Hanovia control cabinet.
- Highly polished and hygienic internal surface finishes.
- Material certifications, documented weld procedures and evidence of welder qualifications.
- FDA-approved seals and gaskets.
- Supply of SS316L support stands for the UV chamber and control cabinet.
- SS316L control cabinets.

In addition to these customisations, Fluidquip Australia continues to provide on-site commissioning support as the various UVs come on-line. Fluidquip Australia looks forward to continuing its ongoing support of these UV systems for CSL Behring.

**More information on CSL Behring can be found at [www.cslbehring.com.au](http://www.cslbehring.com.au)**

You can find out more about all aspects of UV disinfection, deozonation and photolysis by visiting [www.fluidquip.com.au](http://www.fluidquip.com.au)