UV WATER TREATMENT

A practical checklist for assessing a UV system for an industrial or municipal application

The right UV system starts with the process—not simply the equipment. UV can be used for applications including disinfection, dechlorination, deozonation and reduction of total organic carbon (TOC). Each application has different process requirements, so system selection should be based on water characteristics and the intended treatment outcome.

Five points to assess before selecting a system

1. Define the treatment objective. Is the goal to reduce microorganisms, break down residual chlorine or ozone, or reduce organic compounds? These are different applications and may require different UV doses and lamp technologies.

2. Establish flow conditions. Record normal, minimum and peak flow rates. System sizing must account for the conditions under which the process needs to perform—not just average flow.

3. Understand water quality. Assess UV transmittance, suspended and colloidal solids, and relevant chemical or microbiological parameters. Pretreatment may be necessary, particularly before wastewater disinfection.

4. Check operating and installation requirements. Consider available space, pipework, pressure and temperature, materials, cleaning requirements, maintenance access, and compatibility with the wider process or control system.

5. Confirm monitoring and verification needs. Determine what must be monitored, such as UV intensity or dose, alarms, operating hours and maintenance status. Confirm the performance criteria and validation requirements relevant to the application.

Questions worth asking your engineering team

- What measurable treatment result must the system achieve?
- Do we have reliable data for peak flow and water quality?
- Could solids, fouling or changing water conditions affect performance?
- How will system status, alarms and maintenance be monitored?
- Does the proposed system suit the process, installation and applicable validation requirements?

Why application-specific selection matters

UV performance depends on correct system sizing, the water being treated, the required UV dose and operating conditions. A system selected for one application should not automatically be assumed suitable for another. bestUV offers UV treatment systems across a range of industrial and communal applications, with system selection informed by process, microbiology, chemistry and reactor design.

Discuss your application with Instek Control

Instek Control works with instrumentation, automation and engineering solutions to support process performance. If you are planning a new installation or reviewing an existing water-treatment process, share your treatment objective, flow range and available water-quality data with our team.

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Technical note: This checklist is an initial discussion aid, not a design specification. Final selection and performance requirements should be confirmed by qualified application engineers using site-specific data and applicable standards.