

Florescent Penetrant Inspection (FPI) Rinse Water Recycling

Use Case: Green Factory Series® – FPI Rinse Water Recycling System (AG-GFS-FPI)

The FPI process is a non-destructive test method (NDT) that involves applying either a post emulsifiable (PE) or water washable (WW) fluorescent dye to a non-porous material surface to detect defects. It is attractive in several industries due to its simplicity and relative low cost. However, due to Process Control and Environmental Health & Safety (EHS) concerns, there are hidden costs that can thankfully now be addressed; and they can all be found in the contaminated FPI process rinse water, which must be cleaned before reuse and pretreated if discharged.

PROBLEMS:	Contaminated rinse water quality is both costly and unnecessary, burdening manufacturers with unintended consequences.
Increased Worker Health Risk	Contaminated FPI rinse water contains oil, surfactants and green dye. It actively supports contaminants including anaerobic bacteria; causing foul odors and potentially endangering worker health (respiratory issues, contact dermatitis and more.) <i>Burdensome – Risky – Potentially Expensive</i>
Compromised Test Integrity	FPI requires clean materials for a valid inspection. Contaminated rinse water promotes background interference and the potential for inaccurate testing results that can cause false-positive readings (i.e. a good part can be judged as bad). <i>Expensive – Time Consuming</i>
Reduced Product Quality	Residual materials within the contaminated water, including chloride and fluoride, can affect the tested parts, primarily by promoting thermal stress cracking and stock loss corrosion in titanium-based applications. <i>Expensive – Potential Client Loss</i>
Inadequate Market Solutions	For years, manufactures have installed (55) gallon drum-based recycling systems, but they fail to provide clean water for reuse. Although convenient to handle, these drums don't accommodate the necessary pressure to use purification media efficiently, resulting in poor recycled rinse water quality and higher operating costs. <i>Expensive – Time Consuming</i>

SOLUTION:	Green Factory Series – FPI Rinse Water Recycling System (AG-GFS-FPI)
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AQUASGROUP® has solved the FPI rinse water problem with a compact, rugged and reliable solution that continuously re-circulates and re-purifies rinse water as it is used in both Post Emulsifiable (PE) and Water Washable (WW) FPI processes. Our FPI Rinse Water Recycling Systems mitigate the health risks associated with FPI, while enabling process control that promotes more effective testing and better finished part quality.

AQUASGROUP FPI Rinse Water Recycling Systems also eliminate the need for waste water pretreatment before discharge; in fact, the continuously recycled rinse water is de-ionized, and rendered clear and fresh, eliminating the need for discharge at all.

BENEFITS:	Enhanced safety and process control improve the top and bottom line.
Improved Worker Health and Safety	<p>AQUASGROUP FPI Rinse Water Recycling Systems:</p> <p>Promote good industrial hygiene and shield your employees and your business from adverse consequences.</p>
Robust Process Control	<p>Improve process control, resulting in more accurate testing results and reducing the need to retest. This saves time and money. It also prevents “false positive” test results saving unnecessary material costs.</p>
Simplified Rinse Water Handling Process	<p>Maintain rinse water in a safe, productive state, so that it can be used indefinitely. There is no more need for discharge pretreatment and discharge permitting/reporting.</p>