

Washing, Rinsing & Drying

QUAKERCLEAN[®] 624 CP
CASE STUDY



AUTOMOTIVE INDUSTRY

Challenges

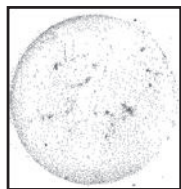
A major automotive manufacturer was restarting its engine production plant to produce new engines. The manufacturer was in need of a cleaner for use in their new final connecting rod washer. This washer was a used washer from one of the manufacturer's other plants. It had been reworked to meet this engine production plant's specific need of washing HS170 powdered metal connecting rods with bronze brushings, which require 30-60 days of rust protection in an indoor storage environment.

The automotive manufacturer's central engineering team contacted Quaker immediately for a cleaner recommendation and invited them to participate in the runoff of the washer. Quaker proposed using the QUAKERCLEAN[®] 624 CP, a dual purpose, mild alkaline liquid that simultaneously cleans and protects metal surfaces in a single processing step.

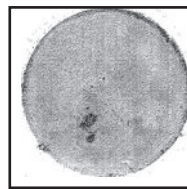
Providing Solutions

Runoff data

During the runoff, sediment testing was run on dirty connecting rods to establish a baseline. The baseline averaged 6.66 mg/part.



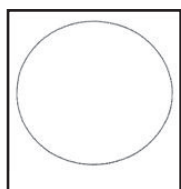
5.82 mg



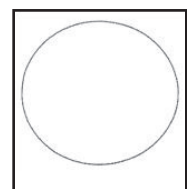
7.50 mg

Several connecting rods were then run through the washer using a 4% cleaning solution of QUAKERCLEAN[®] 624 CP in both the wash and rinse stages. Eight of these connecting rods were randomly pulled and also sent for sediment testing. The manufacturer had a target specification for this test of 5 mg/part.

The sediment testing results for these parts averaged .41 mg/part.



.19 mg



.73 mg

Two of these connecting rods were then wrapped in desiccant paper to be stored. These parts were evaluated after 90 days for any signs of corrosion. After 90 days both of these rods remained rust free.

Trial Data

Once the washer was installed in the new engine manufacturing plant, it was charged with QUAKERCLEAN[®] 624 CP. Since installation production has slowly ramped up at this facility.

Total cleaner costs for this washer one year after being charged were \$3,808. Details are contained in the chart below.

	Usage (gallons)	Cost
January	55	\$328
February	0	\$0
March	0	\$0
April	0	\$0
May	55	\$328
June	110	\$657
July	110	\$624
August	0	\$0
September	110	\$624
October	220	\$1,247
November	0	\$0
December	0	\$0
Total	660	\$3,808

Throughout this process Quaker's on-site Chemical Management (QCMSsm), Process Support and Product Management teams were able to build an excellent customer relationship with our customer's personnel. Due to this successful partnership and performance of the QUAKERCLEAN[®] 624 CP in the connecting rod washer Quaker was awarded the business of all of the remaining in-process and final parts washers at this engine plant.

Product Description

QUAKERCLEAN® 624 CP is a dual purpose, mild alkaline liquid that simultaneously cleans and protects metal surfaces in a single processing step. This product is designed for ferrous (steel and cast iron) alloys and non-ferrous (aluminum) alloys. QUAKERCLEAN® 624 CP will not foam and works extremely well in deburring operations with spray pressures in excess of 2,500 psi (172 BAR).

QUAKERCLEAN® 624 CP does not contain any strong acids, strong alkalis, nonylphenol ethoxylates (NPEs), solvents, ozone depleting compounds, silicates, phosphates or chelating agents. No VOC at recommended use concentration and temperature. QUAKERCLEAN® 624 CP has a mild operating pH and is non-flammable and non-combustible. Effective cleaning at ambient temperatures reduces energy costs.

Process & Equipment

Wash, Rinse and Dry Flatwire Conveyor Washer

WASH & RINSE

Part:	Connecting rod
Part Alloy:	HS170 powdered metal with bronze brushings
Conveyor Speed:	7 ft/min
Concentration:	4%
Temperature:	130°F
Pressure Top:	28
Pressure Bottom:	N/A
Flow GPM:	75
Ultrasonics	N/A
Types of Nozzles (1/4"-5060):	V-Jets
Number of Nozzles:	18
Filter Size:	10

Notes about Parts Orientation: Part flat on belt; crankbore leading

Dryer

Temperature:	140°F
Pressure:	800 CFM @ 40" s.p.
Time in Dryer:	30 Seconds

Product & Process Expertise

Metalworking lubricants represent a very minor part of the costs in a metalworking process, typically less than 1%. This case illustrates the importance of correct fluid selection. The impact of the fluid can be a multiple of its costs, making the price of a metalworking fluid insignificant. That is why Quaker focuses on developing fluids with the highest performance without compromise, fluids that sharpen your competitive edge.

Quaker Chemical Management Services (QCMSSM) offers a full range of process expertise and support. Quaker programs are ISO 9001 certified and have received numerous supplier certifications and awards for excellence. QCMSSM provides a disciplined approach to controlling the acquisition, delivery, storage, application and disposal of process fluids.

Quaker Management Services provides:

- **Inventory Management**
- **Process Monitoring**
- **Chemical Usage Reporting**
- **Chemical Sampling**
- **Knowledge Sharing**
- **Fluid Recycling**
- **Waste Management**
- **Technical Support**
- **Engineering Services**