

SERFILCO® CASE HISTORY

Government Regulations Create Money Saving for Europe Practice

Bekaert Handling, of Glenrothes Scotland have a modern in-house plating facility to zinc plate their distribution & warehouse materials handling, and DIY store trolleys.

They plate non-cyanide alkaline zinc employing two automatics. With associated cleaning and rinse tank facilities they are well beyond the minimum level of 30m³ water consumption set by IPPC.

Impending legislation demands that organizations minimize waste and recycle, using best available technologies, which do not incur excessive cost.

Their main objective was to minimize water consumption and to reuse as much treated water as possible for non critical rinses. By achieving this they would save money on major ongoing utility cost.

They needed to achieve these levels, of course while still meeting and even exceeding the necessary ppm consent levels to satisfy the local Scottish water authority.

All this had to be done with as little as possible maintenance and operator attention. With zero consumables.

In this case the economics alone speak for themselves because the pay back on the initial capital cost is very impressive indeed.

So it is possible to be environmentally aware and save a considerable amount of money on a very necessary but ever increasing costly resource. Water is not cheap. Bekaert's annual water consumption for 2002 was 17,000 m³.



Totally automatic PLC Controlled Titan and BackWash Filter Vessel

A SERFILCO TITAN was selected to be installed following the neutralization and settling tanks of their waste treatment in January of 2002.



The Recirculation and Backwash Pump, showing Automatic Valves

The SERFILCO Auto – backwash filter system was an immediate success. Within the first 3 months it was possible to confidently say that it was capable of recycling consistently over 45% treated waste water back to non-critical rinses dropping their annual water consumption to 9,000 m³ and they managed to consistently recycle.

Initial feedback was extremely promising indeed, with favorable comments :

The TITAN is completely “switch on and forget,” very easy to operate.

Also there are no consumable costs since the filter media is virtually permanent. The maintenance costs are negligible,

Mr. Lightfoot, the plating process manager at Bekaert says :

“ It’s a pleasure to work with. It virtually looks after itself, being totally unattended most of the time.

”TOTALLY AUTOMATIC W/O FILTER MEDIA COST

It operates 24 hours/day and 5 days/week. It only back flushes twice a day and the clarity of the effluent is very acceptable.

The previous Ultrafiltration “Cross-Flow” Filter System was very labor intensive and was variable on recycling (between 0 - 30%) of water.



Closed loop return pipework to the central re-circulation tank

QUICK PAY BACK TIME

The capital cost of the Titan has been recovered almost within the first year alone, calculated on the basis of actually saving over 50% water by recycling. Saving not only on the cost of paying for incoming water, but also the zero charge for costs that would be incurred to sewer.

HOW THE TITAN FITS INTO THE WASTE TREATMENT CYCLE

The TITAN W100 is rated at 9m³/h, and 4.5m³/h is discharged from the Plating Shop Effluent at approx. pH 6.8.

This then goes through two neutralization stages to achieve pH correction to between 9 - 9.5 pH.

This precipitates the alkaline metals as hydroxides.

THE FLOW PATH - SEQUENCE

The effluent plant has 2 separate settlement tanks with automatic desludging to the filter press.

From the final clarifier tank the overflow is routed to the Circulation Tank and this weirs over into the TITAN “Polishing “ Auto Back Wash Filter Supply.

This circuit is a closed loop arrangement and continuously filters and re-filters this circulation tank which is at the heart of the system.

This then overflows to the recycle tank and at this point 1.5m³/h is directed back into the system for non-critical rinses and the remainder, 3.5m³/h goes to drain.

The back flush cycle is initiated automatically approx. twice daily. When a preset flow rate is detected the full cycle is actuated, and is complete in little over 10 minutes utilizing a minimum volume of water.

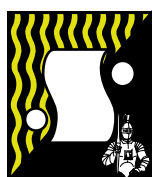
The effluent generated from the backwash cycle is then directed back into the first stage settlement tank and the closed loop circuit is maintained yet again.

The TITAN responds automatically to a preset minimum flow rate without compacting particulates onto the media bed.

The automatic cycle is programmed for optimum use of backwash water.

Low pressure air is necessary to purge the system enabling particulates to exit the chamber without loss of filter media.

HOW MUCH MONEY WILL THE TITAN SAVE YOU IF YOU RECYCLE YOUR WATER FOR REUSE?



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