

# Techfil

(Europe) Limited

## EVALUATION OF SAND, PUMICE / SAND & ANTHRACITE / SAND IN RAPID GRAVITY FILTERS

### CALCULATION OF THE COST BENEFITS BY USING REDUCED WASH WATER VOLUMES WITH PUMICE / SAND MEDIA

#### ASSUMPTIONS

- Cost of treated water is £0.75 per cu.m (Severn Trent fig.)
- Filter area of 1 sq.m.
- No benefits from reduced power consumption, reduced times for backwash.
- No benefits from reduced backwash water to be treated.
- No capital costs benefits from smaller backwash treatment facilities.

#### TEST RESULTS

From the tests carried out at United Utilities works at Huntington, near Chester, using clarified River Dee water, the following results were obtained:-

Backwash Cycle	Duration (mins)	Sand	Sand/Anthracite	Sand/Pumice
Air (m/h)	4	45	45	45
Water (m/h)	4	6	6	6
Rinse (m/h)	4	34	30	22
Filter Run Times (hours)	-	5.8	20.8	18.6
Volumes used (cu.m)				
Wash	-	0.399	0.399	0.399
Rinse	-	<u>2.266</u>	<u>1.999</u>	<u>1.466</u>
Total		2.665	2.398	1.865

#### COSTINGS

Costs (£/Wash)	2.00	1.80	1.40
Washes/Day	4.14	1.15	1.29
Costs/Day (£)	8.28	2.07	1.81
Costs/Year (£)	3,022	756	661

#### SAVINGS

SAND / PUMICE THEREFORE SHOWS A SAVING, COMPARED WITH SAND / ANTHRACITE OF £95.00 PER YEAR PER SQUARE METRE OF FILTER AREA IN REDUCED BACKWASH WATER CONSUMPTION.

Hall Road, Aylesford, Maidstone, Kent ME20 7QZ  
Tel: 01622 717780 Fax: 01622 710551  
e-mail: [info@techfil.co.uk](mailto:info@techfil.co.uk) web: [www.techfil.co.uk](http://www.techfil.co.uk)

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