

## Bag Filter / Iodide Resin Cartridge Water Treatment Trial

Analytical testing conducted by Hill Laboratories Microbiology Department.  
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The trial was set up by Sue and Russell Kelly from World Wide Water Ltd, with the analytical testing for *Escherichia coli* carried out by RJ Hill Laboratories Ltd and the analytical testing for phage levels carried out by Watercare Services Ltd. This trial was observed in its entirety by Barbara Muller from Hill Laboratories.

A Bag Filter / Iodide Resin Cartridge treatment system was used for the treatment of water of varying quality. The system first preliminarily filters the water by passing it through a bag incorporating a filter mesh of 1 - 21µm. From the bag the water passes through an in-line cartridge containing activated carbon / MCV iodised resin, then through iodisorb and more carbon before being collected for use.

Rather than seeding water samples with a laboratory strain *E. coli*, the trial was carried out using raw sewage mixed into river water. This was done to ensure that the trial represented as close to a real field situation as possible. By using raw sewage and river water the trial simulates what may happen in a real emergency situation where water of drinking quality becomes contaminated with large volumes of raw sewage. Raw, untreated sewage was collected from the Bromley Sewage treatment plant, Christchurch.

A 5% sewage / river water mix was created in a 25 Litre tank with a pump attached, capable of pumping 2.75 LPM. The pump was used to mix the contents of the tank for 40 minutes.

A sample of the 5% sewage / river water mix was taken after mixing was complete.

The 5% sewage / river water mix was passed through the treatment system at a rate of 200cc per minute.

A sample was taken after the in-line cartridge iodide resin treatment

Results of the field trials are shown below:

**Table 1:** 5% sewage / river water mix

	<i>E. coli</i> count MPN per 100ml	Phage count pfu per 1 L
5% sewage / river water mix prior to treatment	250,000	66,000
5% sewage / river water mix after treatment	0	20
<b>% Decrease</b>	<b>100%</b>	<b>99.97%</b>

MPN = Most Probable Number pfu = Phage forming units LPM = Litres per minute