DWRG
DRINKING WATER RESEARCH GROUP

Working together for innovation in drinking water quality, treatment, and distribution

Choosing the Best Activated Carbon for Taste and Odour Control

Principal Investigator:
Dr. Ron Hofmann, University of Toronto

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Natural Sciences and Engineering Research Council of Canada

Partners:
Municipalities
Region of York (ON), Region of Halton (ON), Region of Durham (ON)

Industry
Calgon Carbon Corporation

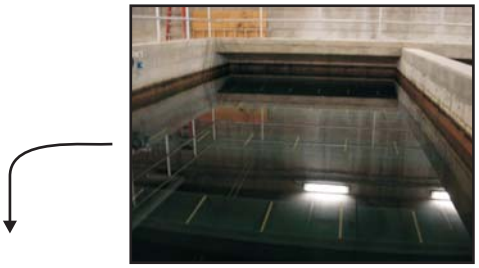
In order to improve the information available to utilities when selecting activated carbon:

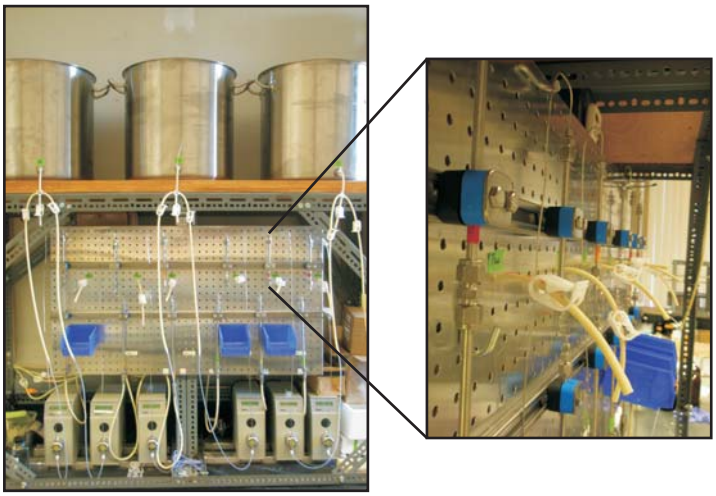
- New tests are being developed that more accurately measure the number of high energy adsorption sites per gram of carbon.
- Improvements to scale-up methods are being explored.
- Rapid small-scale column tests mimicking the activated carbon performance of specific Ontario water treatment plants are being conducted.
- Activated carbon contactors are being modeled to determine carbon capacity for the removal of emerging contaminants (e.g. pharmaceuticals).

The primary focus of these projects is to provide useful tools and parameters to help utilities select appropriate carbon for their specific water needs.

Water treatment plants regularly depend on iodine numbers to indicate adsorption capacity of an activated carbon. Unfortunately, the iodine number is not a very good predictor of the adsorption of contaminants present at very small concentrations in water, such as taste and odour (T&O) compounds, geosmin and 2-methylisoborneol (MIB).

Activated carbon has both high and low energy adsorption sites. Iodine number does not specify on the availability of high energy sites but instead indicates a total adsorption capacity for a carbon. It is theorized that the removal of micropollutants such as T&O compounds, pharmaceuticals, and pesticides, need an activated carbon that has a high proportion of high energy sites.





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