



Removal of contaminants using ceramic filtration materials

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APPLICATIONS

Potable or drinking water, point-of-use filtration systems, arsenic remediation, water treatment plants, pharmaceutical or analytical laboratories, etc.

TARGET PROBLEMS

- ❖ Water contaminants such as arsenic, bacteria and viruses are the greatest threats to public health.
- ❖ Chromium, Cr(VI) is recognized as one of the most widespread heavy metal pollutants in ground water worldwide.
- ❖ Arsenic exists as As(III) and As(V) in water, and As(III) requires oxidation for effective removal.
- ❖ Existing technologies are effective with As(V) removal, but very few are effective in As(III) removal.

KEY BENEFITS

- ❖ **Multiple selectivity** - Filtration material developed can be used for arsenic, chromium, bacteria and virus removal from drinking water.
- ❖ **Arsenic removal** - Ceramic filtration material has shown rapid and effective removal for both As(III) and As(V).
- ❖ **Low cost** - The filtration material developed is affordable, low maintenance, and environmentally friendly.
- ❖ **Versatile** - Can be used as a column or batch filtration system with varying flow rates.
- ❖ **Easy to use and scalable** - The technique is simple and offers robust filtration systems that is scalable.

TECHNOLOGY

Inventors at University of Wisconsin-Milwaukee have developed ceramic filtration material with Lanthanum (La) coating that effectively removes water contaminants for safer drinking water. Porous ceramic materials are prepared with the use of earth abundant clay minerals as substrates and organic wastes (recycled cellulose fibers) as pore forming materials and can be fabricated into various shapes for the desired filtration method. The filtration media utilizes high affinity of lanthanum for arsenic and chromium removal, and tunable porosity of ceramic materials for bacterial and virus removal at desired flow rates.

INTELLECTUAL PROPERTY

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