



Modified Zeolites for Removal of Pollutants from Water

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APPLICATIONS

Water & wastewater treatments, drinking water, heavy metal removal, and persistent organic pollutants (POPs) removal.

TARGET PROBLEMS

- Design of efficient and selective adsorbent for removal of heavy metals remains challenging.
- POPs comprising of BPA, PFOA, Metformin, Atrazine are difficult to remove from water and wastewater.
- There is a need for materials with improved adsorption capacity and recyclability.

KEY FEATURES

- **Efficient** – Test result indicate high adsorption capacity at lower concentration of pollutants.
- **Cost effective** – All materials used are available off the shelf and are recyclable.
- **Easy modification** – Material property can be easily tailored to meet specific needs/concentrations.
- **Applications** – Can be used for both heavy metals and POPs removal from water and wastewater.

TECHNOLOGY

Inventors have developed a range of zeolites having surface modifications with graphene oxide, reduced graphene oxide (rGo), and sulfide for removal of persistent organic pollutant (POPs) and targeted heavy metals from water supply. A highly microporous three-dimensional structure of zeolite offers exceptional ion-exchange and sorption properties advantageous in range of heavy metals removal from water. The adsorption capacity of the zeolite is evaluated based on functionalized surface, dosage, contact time, and pH levels in water. Furthermore, acid treated and functionalized zeolite with graphene oxide (GO) have shown efficient removal of persistent organic pollutants (POPs) comprising of BPA, PFOA, Metformin, Atrazine etc., from water.

INTELLECTUAL PROPERTY

U.S. Patent Filed, Jan 2021

PUBLICATIONS

[RSC Adv., 2020](#) and [Water Supply, 2020](#)

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