

RECENT ADVANCES OF PHOTOCATALYTIC REDUCTION OF HEXAVALENT CHROMIUM USING MESOPOROUS MATERIALS: A REVIEW

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ABSTRACT

The need for wastewater treatment due to the hazards of chromium in the environment has led to the development of various methods regarding the removal of chromium from wastewater. There are multiple technologies concerning treatment of wastewater containing chromium. The choice of the appropriate method and the application of any technology highly depend on the effectiveness in removing chromium from wastewater, the implementation cost and its convenience. The discovery of organized mesoporous materials by researchers in Japan in the early 1990s, marked the beginning of a growing interest in their research. Mesoporous materials with a pore diameter of 2-50 nm, present various interesting properties, such as high specific surface area and a uniform pore size and demonstrate excellent application potential in various technological fields such as photocatalytic reduction of hexavalent chromium.^[1] Other notable applications are photocatalysis, adsorption, gas sensors, batteries and solar cells. Rapid progress in developing novel materials has propelled photocatalysis to the forefront of sustainable wastewater treatments. This review presents the latest progress regarding applications of photocatalytic reduction of hexavalent chromium using mesoporous materials as catalysts^[2].

KEYWORDS: photocatalysis, mesoporous materials, hexavalent chromium, heavy metals, wastewater treatment

REFERENCES

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