

## **A Zwitterionic Metal-Organic Framework for the Capture and Release of Iodine**

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Capturing and disposing of nuclear waste, specifically radioactive iodine, is important for the safe, long-term usage of nuclear power. Metal-organic frameworks (MOFs) are recognized as an excellent class of porous crystalline materials for capturing and storing small molecules due to their large pore volume, high surface area, and structure tunability. Polytopic zwitterionic organic linkers and various metal nodes are used to tailor the MOF to meet the demands of different applications. The zwitterionic nature of organic linkers leads to the formation of charged organic surfaces having the potential to selectively polarize and adsorb guest molecules. MOFs have been previously reported as a novel material for capturing, storing, and releasing iodine, both from vapor and solvent. This work investigates a novel zwitterionic MOF (ZW-MOF) for the capture and release of iodine. Multiple analytical techniques are used to provide a thorough quantitative analysis of the ZW-MOFs adsorptivity of iodine.