# HYDROXAMATE-BASED METAL-ORGANIC FRAMEWORKS

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## PATENT STATUS

| Country | Type | Number | Dated | Case |
|---|---|---|---|---|
| Patent Cooperation Treaty | Published Application | WO 2024/191551 | 12/12/2024 | 2023-083 |

## BRIEF DESCRIPTION

This invention pertains to novel compositions comprising hydroxamate-based metal-organic frameworks (MOFs). These frameworks are synthesized using hydroxamate ligands that coordinate with metal ions to form porous, crystalline structures. The unique properties of these MOFs make them highly versatile and applicable in various industrial and environmental processes. By enabling efficient pollutant removal and water harvesting, hydroxamate-based MOFs contribute to sustainable environmental practices. This disclosure highlights the potential of hydroxamate-based metal-organic frameworks to revolutionize various industrial and environmental applications through their unique properties and versatile uses.

## SUGGESTED USES

- Catalysis: Hydroxamate-based MOFs can serve as efficient catalysts in chemical reactions due to their high surface area and tunable pore sizes.
- Gas Separation: These MOFs can selectively adsorb and separate gases, making them useful in applications such as carbon capture and storage.
- Sensing: The frameworks can be used in sensors to detect specific molecules or ions, providing high sensitivity and selectivity.
- Pollutant Removal: Hydroxamate-based MOFs can adsorb and remove pollutants from air and water, contributing to environmental cleanup efforts.
- Water Harvesting: These MOFs can capture and condense water vapor from the air, offering a potential solution for water scarcity in arid regions.

## ADVANTAGES

- HIGH SURFACE AREA: THE POROUS NATURE OF MOFS PROVIDES A LARGE SURFACE AREA, ENHANCING THEIR EFFECTIVENESS IN VARIOUS APPLICATIONS.

- Tunability: The chemical structure of hydroxamate-based MOFs can be tailored to optimize their performance for specific uses.
- Stability: These MOFs exhibit high thermal and chemical stability, making them durable and reliable in harsh conditions.

## CONTACT

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## INVENTORS

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## OTHER INFORMATION

**CATEGORIZED AS**

» **Environment**
» Remediation
» **Materials & Chemicals**
» Chemicals
» Other
» **Sensors & Instrumentation**
» Analytical
» Biosensors
» Environmental Sensors
» Other
» Scientific/Research

**RELATED CASES**

2023-083-0

- Selectivity: The frameworks can be designed to selectively interact with specific molecules, improving the efficiency of processes such as gas separation and sensing.
- Environmental Impact: By enabling efficient pollutant removal and water harvesting, hydroxamate-based MOFs contribute to sustainable environmental practices.

## RELATED MATERIALS

### ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Coordinative Alignment Of Molecules In Chiral Metal Organic Frameworks
- Exceptional Zeolitic Imidazolate Frameworks And A General Strategy To Make More
- Mof Heterolites: Mesoscopic Heterogeneity Within Order With Porous Nanocrystals

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