

# COUMARIN-LINKED COVALENT ORGANIC FRAMEWORKS

Tech ID: 34028 / UC Case 2025-132-0

## PATENT STATUS

Patent Pending

## BRIEF DESCRIPTION

The challenge of developing materials that offer multifunctionality—specifically combining fluorescence, long-term pollutant sorption, and catalytic efficiency—is significant in materials science. This innovation addresses this by providing Coumarin-linked Covalent Organic Framework (COF) compositions. These unique COFs have crystalline porous polymers with exceptional stability and high surface area. Developed by UC Berkeley researchers, these COF compositions distinguish themselves from conventional materials by offering a highly stable, long-sustaining sorbent capable of removing pollutants over extended periods, while also serving as a highly efficient, regenerable catalyst and a versatile fluorescent material.

## SUGGESTED USES

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As fluorescent materials for advanced imaging and sensing applications.

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For long-sustaining pollutant sorbents in environmental remediation, particularly for water and air purification systems.

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As efficient catalysts for various chemical reactions, offering a stable and easily separable platform.

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In the development of new optically active coatings or membranes.

## ADVANTAGES

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Multifunctionality, combining fluorescent properties, pollutant sorption, and catalytic activity in a single material.

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High stability and porosity characteristic of Covalent Organic Frameworks.

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The ability to act as a long-sustaining pollutant sorbent, reducing the need for frequent material replacement.

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The catalytic component is highly efficient and easily regenerable, contributing to green chemistry and cost reduction.

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The use of coumarin provides a tunable and unique fluorescent signature.

## CONTACT

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## INVENTORS

» Yaghi, Omar M.

## OTHER INFORMATION

### CATEGORIZED AS

» **Environment**

» Remediation

» **Materials & Chemicals**

» Ceramics

» Other

» **Research Tools**

» Other

» **Engineering**

» Other

### RELATED CASES

2025-132-0

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