

# MIL-77





**Nanoporous Iron**  
Metal Organic Framework



MOF



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# Nanoporous Iron

## Metal Organic Framework

Metal-organic frameworks (MOFs), a family of porous organic-inorganic polymer has fascinating applications in the areas of catalysis, sensors, gas storage and separation, energy storage and conversion, magnetic and ion-conducting properties etc. MOFs are synthesized via coordination reactions between metal clusters/ions and appropriate organic ligands. The metal clusters/ions in MOFs are generally transition metal ions and lanthanide ions, while the organic ligands usually contain functional groups. They have structural diversity and specific adsorption affinity for the application in gas storage. MOFs can be used for gas storage, purification and separation, as well catalysis and sensing applications.

### Quick Facts

Synonyms	:	MIL-89
Stock No.	:	NS6130-12-000877
CAS	:	7439-89-6
Purity	:	99 %
APS	:	30-40µm
Molecular Formula	:	C <sub>8</sub> H <sub>12</sub> N <sub>4</sub> Zn
Molecular Weight	:	229.60 g/mol
Form	:	Powder



## Properties

- Large Surface Area
- High degree of crystallinity
- Low density
- Uniform channels
- Porosity
- High thermal stability
- Chemical tailor ability

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# Applications

## 01 Food

- Quality control (e.g. moisture control)
- Food storage (e.g. suppression of ripening agents)
- Shelf life management (e.g. triggered release of ripening agents)
- Delivery of agrochemicals (e.g. triggered release of fertilizers etc.)

## 02 Gas storage

- Compressed gas storage (e.g. natural gas, hydrogen, etc.)
- Toxic and reactive gas systems (e.g. via sub-atmospheric storage systems)
- Carbon capture and sequestration (CCS)

## 03 Conductivity

- Electronics
- Batteries (e.g. electrodes, electrolytes, etc.)
- Optoelectronic devices (e.g. solar cells)
- Additives

## 04 Catalysis

- Catalytic support and immobilization
- Encapsulation of catalytic active species
- Unprecedented selectivity and activity

## 05 Sensing and detection

- Gas/vapor and small molecule detection
- Luminescence (e.g. scintillation)
- Medical diagnostics
- Explosive detection

## 06 Gas Treatment

- Separation (e.g. hydrocarbons, CO<sub>2</sub>, O<sub>2</sub>, H<sub>2</sub>, NH<sub>3</sub>, H<sub>2</sub>S, toxics, etc.)
- Purification
- Impurity and odor removal
- Filtering (e.g. molecular sieves)

## 07 Textile upgrading

- Additives
- Personal protection
- Chemical, biological, radiological and nuclear (CBRN) defense

## 08 Gas and liquid adsorption

- Drug Delivery (e.g. slow release of target molecules)
- Water harvesting
- Removal of toxic and hazardous substances (e.g. chemical warfare agents)
- Heat transformation (e.g. adsorption heat pumps)
- Respiratory systems (e.g. gas masks)
- Water treatment (e.g. heavy metal removal)



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