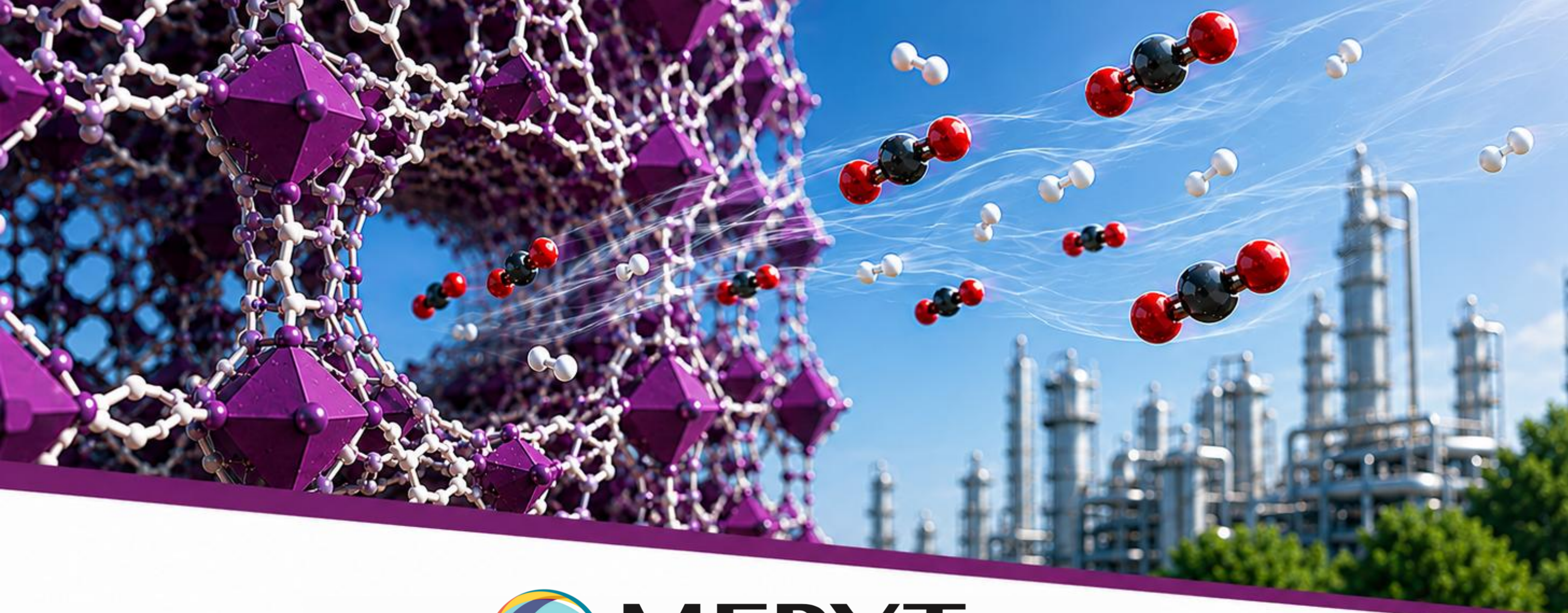




MERYT
Catalysts & Innovation

ADVANCED MOF MATERIALS

CATALYSTS & ADSORBENTS FOR A BETTER FUTURE



High performance
materials



Designed for
catalysis



Advanced
controlled solutions



ADVANCED MATERIALS SOLUTIONS

FOR ADSORPTION AND CATALYSIS PERFORMANCE

Advanced MOF materials are essential pillars for optimizing efficiency and sustainability in industrial purification, separation, and adsorption processes. We offer a specialized portfolio of high-performance metal-organic frameworks for gas capture and storage, water treatment, catalysis, solvent recovery, and selective molecular separations, helping businesses maximize process efficiency while driving the transition toward a circular economy.

At **MERYT Catalysts & Innovation**, we are fully committed to delivering innovative MOF-based solutions developed in collaboration with leading research centers in porous materials, chemistry, and advanced materials science. Backed by our internationally recognized experts, we provide continuous technical service and support to maximize material performance and application value, ensuring superior operations and building strong, rewarding, and long-lasting relationships with our customers.

OUR SERVICES



PROCESS OPTIMIZATION

- ✓ MOF performance evaluation and recommendations
- ✓ Unit design, start-up and optimization
- ✓ Loading and unloading assistance to minimize downtime



TECHNICAL SUPPORT

- ✓ Operator training and troubleshooting
- ✓ On-site and remote technical assistance
- ✓ Safety, reliability and operational excellence

WHY US?



GLOBAL PRESENCE

Local support in Europe and the Middle East



HIGH QUALITY

MOFs with consistent performance and good application



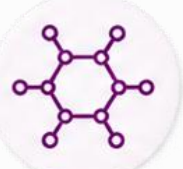
CUSTOMER FOCUS

Long-term partnerships focused on your success

PRODUCTS INDEX

DISCOVER OUR MOF PORTFOLIO

01



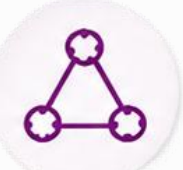
MERYT ZIF-67

02



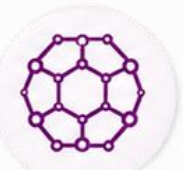
MERYT ZIF-8

03



MERYT ZIF-93

04



MERYT MOF-177

05



MERYT MIL-101(Cr)

06



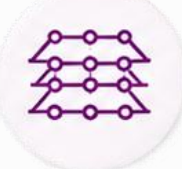
MERYT MIL-100(Cr)

07



MERYT MIL-100(Fe)

08



MERYT MIL-88A(Fe)

09



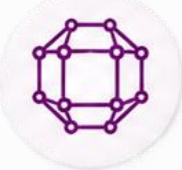
MERYT MOF-303

10



MERYT MOF-801

11



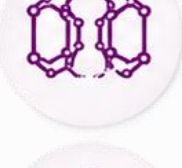
MERYT MOF-808

12



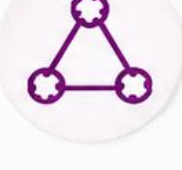
MERYT UiO-66

13



MERYT MOF-74(Mg)

14

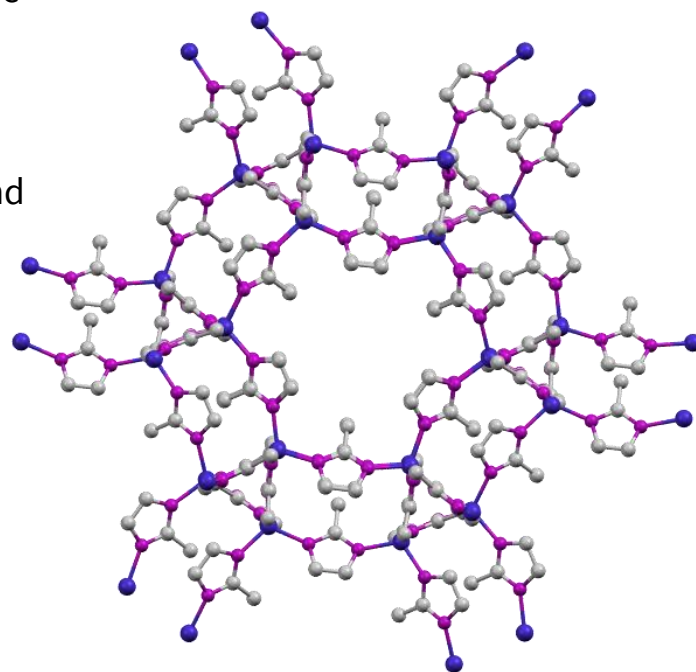


MERYT TYUT-12

MERYT ZIF-67

Cobalt-based MOF for adsorption and catalysis

MERYT-ZIF-67 is a highly stable cobalt-based metal organic framework designed for gas adsorption, gas separation and catalysis



KEY PROPERTIES



Surface area
Microporous
1200–2500 m²/g



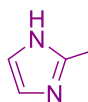
Pore size
~ 0.5 – 0.9 nm



Thermal stability
Up to 300 °C



Metal center
Cobalt (Co)



Ligand
2-methylimidazole



Form
Purple powder/Pellets



Particle size
400 – 500 nm



ADSORPTION PERFORMANCE

Measurement conditions
77 K, N₂

Sample
MERYT-ZIF-67

Analysis
BET: ≥ 2100 m²/g

APPLICATIONS



Gas Adsorption and capture
CO₂ and H₂ capture, gas separation, gas storage



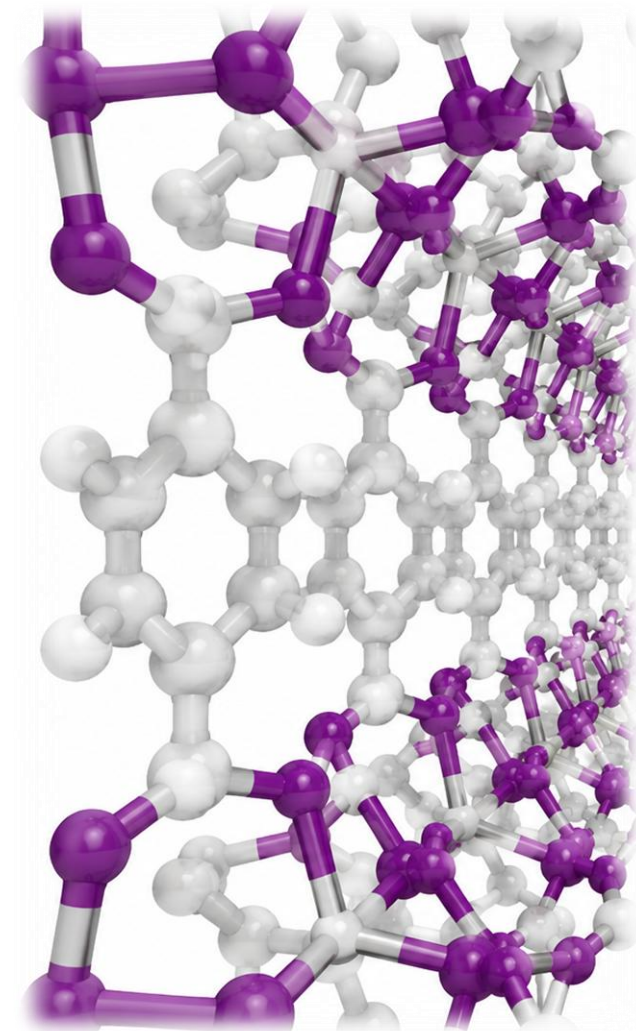
Catalysis
Electrocatalyst, photocatalyst, etc.
(HER, OER, water splitting)



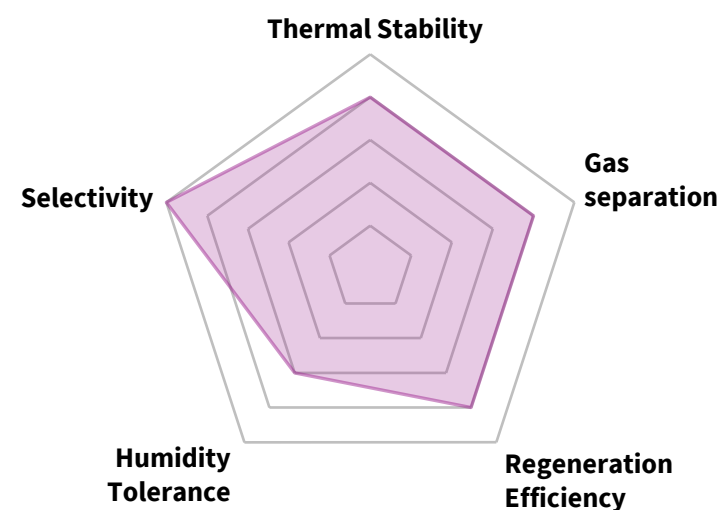
Sensor
Electrochemical sensors, biosensors, pollutant detection



Material precursor
It can thermally transform into: Co₃O₄, CoP, CoS, CoSe or nitrogen-doped carbon



PERFORMANCE HIGHLIGHTS



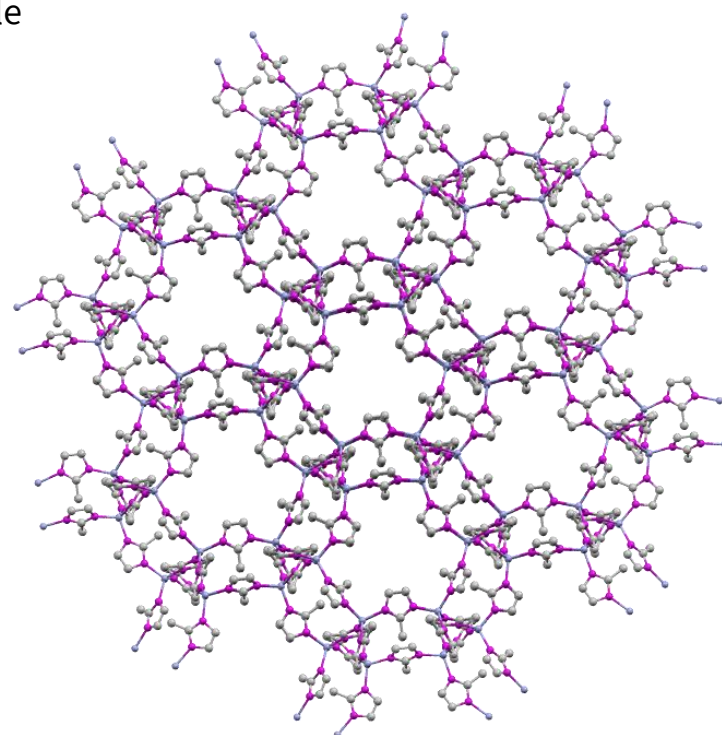
WHY CHOOSE MERYT-ZIF-67?

- ✓ Very high surface area
- ✓ Excellent precursor for catalytic materials
- ✓ High crystallinity
- ✓ Good thermal stability
- ✓ High electrochemical activity

MERYT ZIF-8

Zinc-based MOF for adsorption and catalysis

MERYT-ZIF-8 is a highly stable zinc-based metal organic framework designed for gas storage, biomedicine and catalysis



KEY PROPERTIES



Surface area
Microporous
1200–2000 m²/g



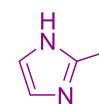
Pore size
~ 0.8 - 1.8 nm



Thermal stability
Up to 300 °C



Metal center
Zinc (Zn)



Ligand
2-methylimidazole



Form
White powder/Pellets



Particle size
50 – 200 nm



ADSORPTION PERFORMANCE

Measurement conditions
77 K, N₂

Sample
MERYT-ZIF-8

Analysis
BET: ≥ 1500 m²/g

APPLICATIONS



Gas Adsorption and capture
CO₂ capture, gas separation and purification, removal of organic pollutants



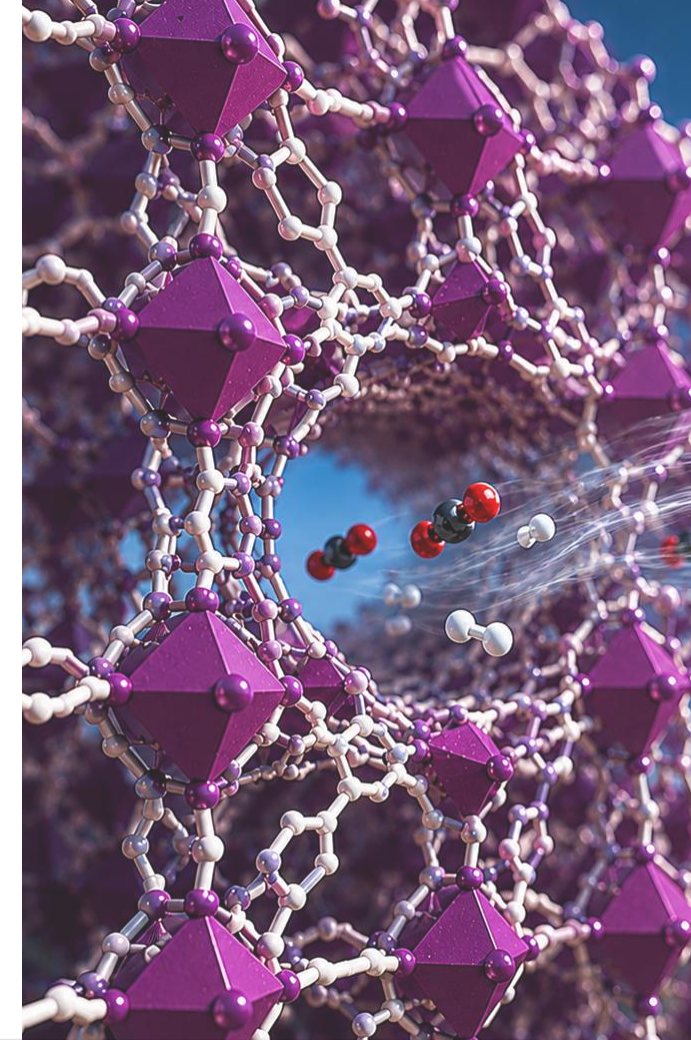
Catalysis
Heterogeneous catalyst, ZnO precursor, catalytic support



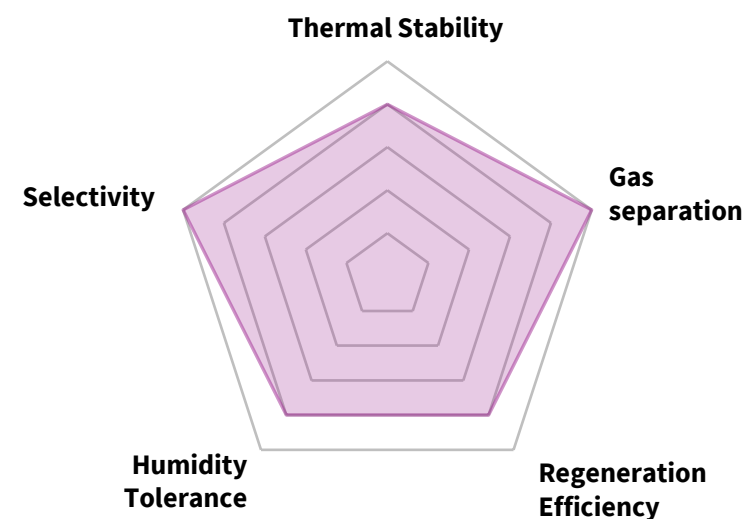
Membranes and sensor
Detect: Metal ions, toxic compounds or organic molecules
Biogas purification



Biomedicine
Useful in drug delivery, Biomaterials or nanomedicine



PERFORMANCE HIGHLIGHTS



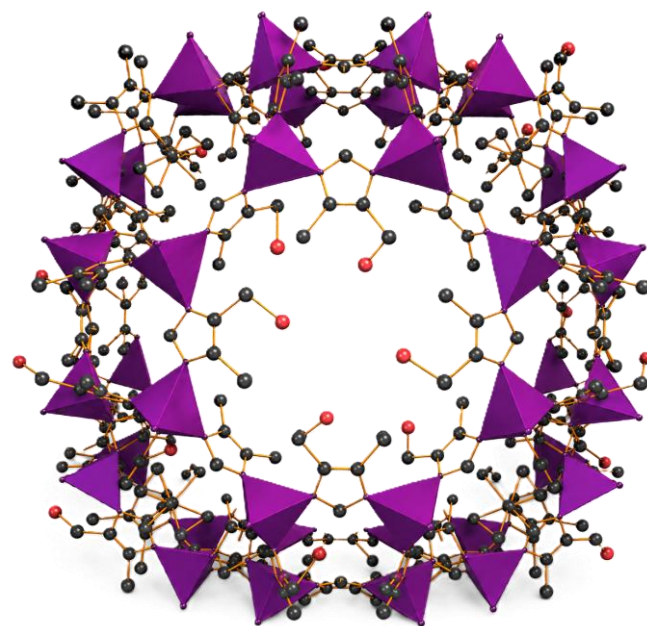
WHY CHOOSE MERYT-ZIF-8?

- ✓ Very high porosity
- ✓ Relatively low cost
- ✓ Good stability
- ✓ Excellent molecular selectivity
- ✓ Easily controllable nanoscale size

MERYT ZIF-93

Zinc-based MOF for environmental remediation and gas adsorption

MERYT-ZIF-93 is a stable zeolitic imidazolate framework designed for gas adsorption and separation, and environmental and biomedicine applications



KEY PROPERTIES



Surface area
Microporous
1200–2000 m²/g



Pore size
~ 1.57 nm



Thermal stability
Up to 300 °C



Metal center
Zinc (Zn)



Ligand
4-methyl-5-formaldehyde
imidazole



Form
White powder/Pellets



Particle size
300 – 600 nm



ADSORPTION PERFORMANCE

Measurement conditions
77 K, N₂

Sample
MERYT-ZIF-93

Analysis
BET: ≥ 1121 m²/g

APPLICATIONS



Gas Adsorption and capture
Efficient adsorption of CO₂ from gas mixtures and selective gas adsorption



Environmental application
Used in hybrid nanoparticles in membrane performance



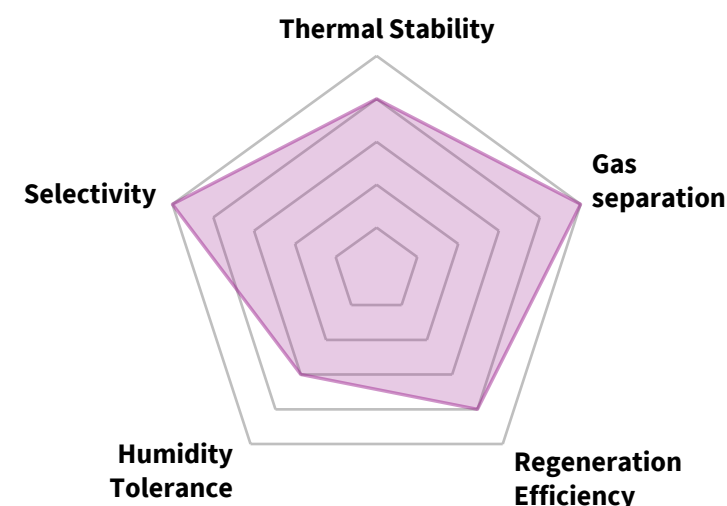
Gas Separation
H₂/CO₂ separation, H₂ purification



Biomedicine
Immobilizing biomolecules, advanced biosensors and bioanalytical devices



PERFORMANCE HIGHLIGHTS



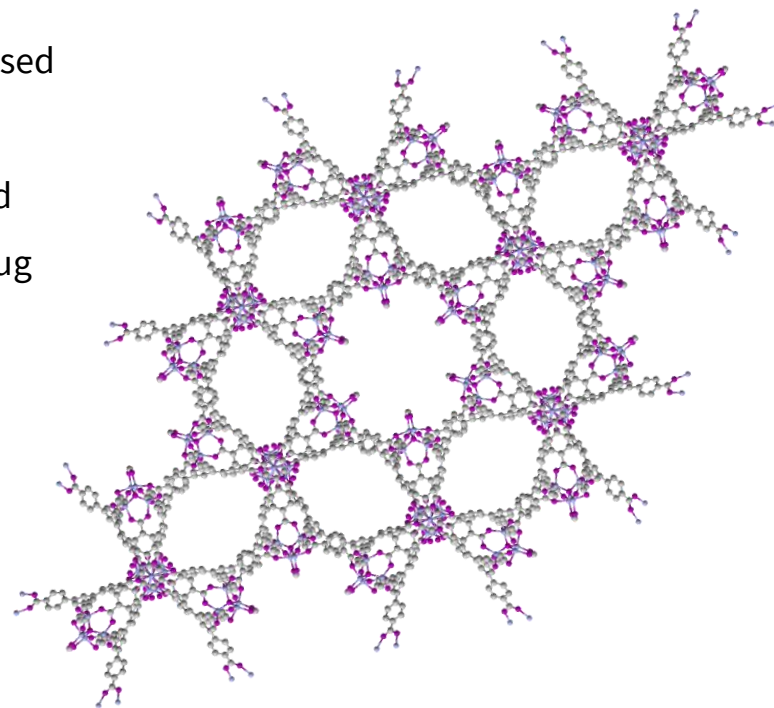
WHY CHOOSE MERYT-ZIF-93?

- ✓ Excellent selectivity for CO₂
- ✓ Very good performance in gas separation
- ✓ Good thermal stability
- ✓ Very promising for blended membranes
- ✓ Good regeneration

MERYT MOF-177

Zinc-based MOF for adsorption and catalysis

MERYT-MOF-177 is a zinc-based metal organic framework designed for gas storage and separation, catalysis and drug delivery applications



KEY PROPERTIES



Surface area
Microporous
1500–4500 m²/g



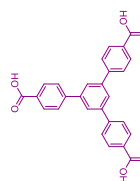
Pore size
~ 1.1 nm



Thermal stability
Up to 200 °C



Metal center
Zinc (Zn)



Ligand
1,3,5-benzenetribenzoate



Form
White powder/Pellets



ADSORPTION PERFORMANCE

Measurement conditions	Sample	Analysis
77 K, N ₂	MERYT-MOF-177	BET: ≥1600 m ² /g

APPLICATIONS



Gas Adsorption and capture
Capture of gases and small molecules, applications in molecular storage and transport



Catalysis
Used as a catalyst support: dispersion of active species thanks to its high porosity.

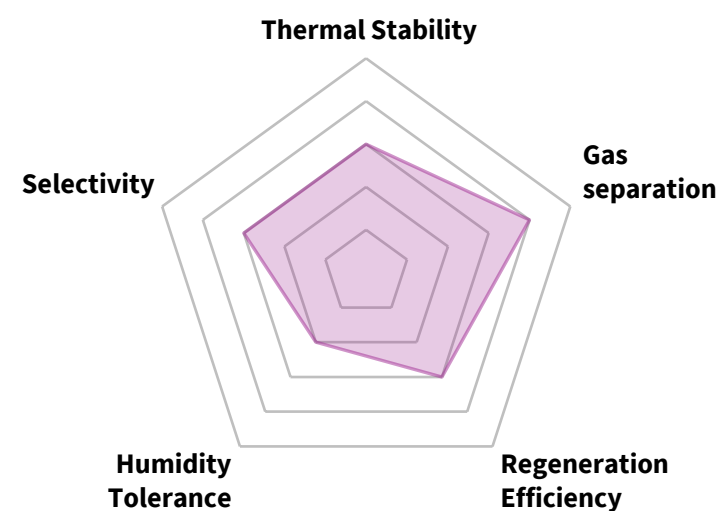


Gas Separation
Selective separation of gas mixtures, purification of industrial gas streams



Biomedicine
Research into nanomedicine and drug delivery

PERFORMANCE HIGHLIGHTS



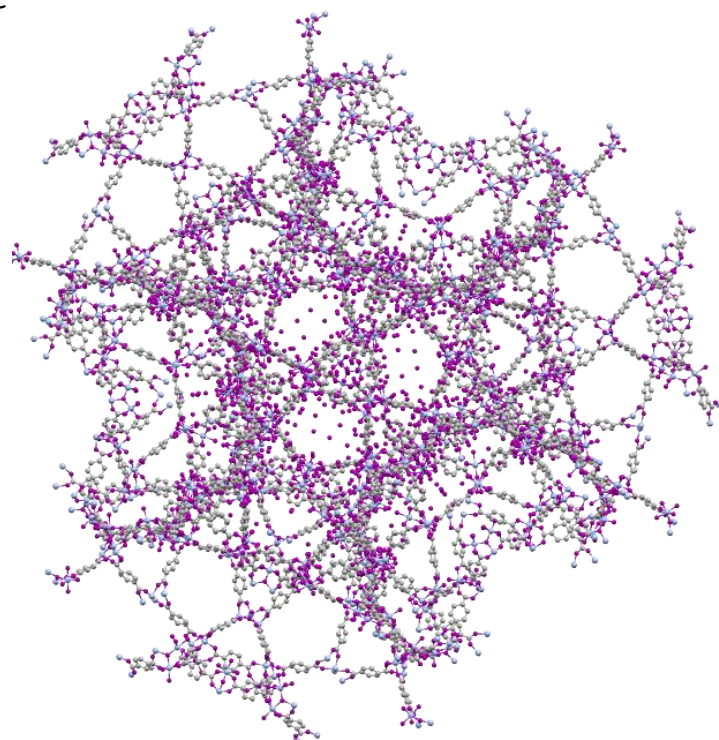
WHY CHOOSE MERYT-MOF-177?

- ✓ Extremely high surface area
- ✓ Huge cavities
- ✓ Excellent adsorption capacity
- ✓ Large gas storage capacity
- ✓ Potential for drug delivery

MERYT MIL-101(Cr)

Chromium-based MOF for adsorption and catalysis

MERYT-MIL-101(Cr) is a stable chromium-based metal organic framework designed for pollutant and gas adsorption, and catalysis



KEY PROPERTIES



Surface area
Micro-/Mesoporous
2500–4500 m²/g



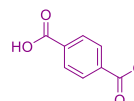
Pore size
~ 2.9 – 3.4 nm



Thermal stability
Up 300–350 °C



Metal center
Chromium (Cr)



Ligand
Terephthalic acid



Form
Green powder/pellets



Particle size
100 – 200 nm



ADSORPTION PERFORMANCE

Measurement conditions	Sample	Analysis
77 K, N ₂	MERYT-MIL-101(Cr)	BET: ≥ 2500 m ² /g

APPLICATIONS



Gas Adsorption and capture
CO₂, H₂, CH₄ capture, gas separation



Pollutant capture
Widely used to remove dyes, pesticides, drugs and pollutants

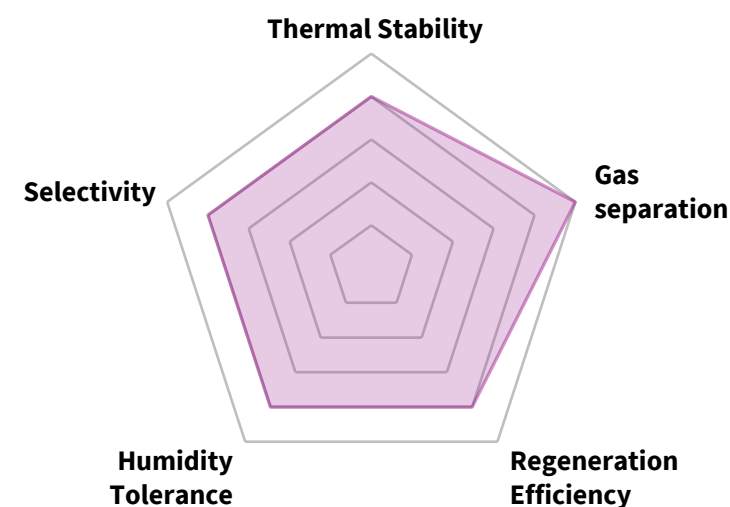


Catalysis
Cr sites can act as active sites or be functionalized for: oxidation, esterification and selective organic reactions



Catalytic support
Frequently used as a support for: metal nanoparticles, enzymes and catalytic complexes

PERFORMANCE HIGHLIGHTS



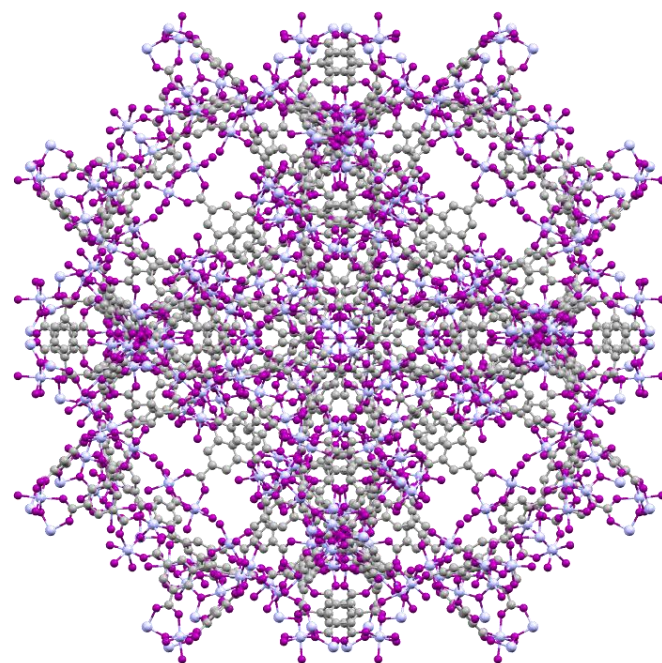
WHY CHOOSE MERYT-MIL-101(Cr)?

- ✓ Extremely high surface area
- ✓ Huge cavities
- ✓ Excellent adsorption capacity
- ✓ Good chemical stability
- ✓ Highly versatile for catalysis

MERYT MIL-100(Cr)

Chromium-based MOF for adsorption and catalysis

MERYT-MIL-100(Cr) is a stable Chromium-based metal organic framework designed for gas adsorption, gas separation and catalysis



KEY PROPERTIES



Surface area
Micro-/Mesoporous
1400 – 3200 m²/g



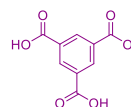
Pore size
~ 0.8 – 2.7 nm



Thermal stability
Up to 280 °C



Metal center
Chromium (Cr)



Ligand
Trimesic acid



Form
Green powder/pellets



Particle size
50 – 100 nm



ADSORPTION PERFORMANCE

Measurement conditions	Sample	Analysis
77 K, N ₂	MERYT-MIL-100(Cr)	BET: ≥1200 m ² /g

APPLICATIONS



Gas Adsorption and capture
Adsorption of CO₂ from gas mixtures and selective gas adsorption and separation

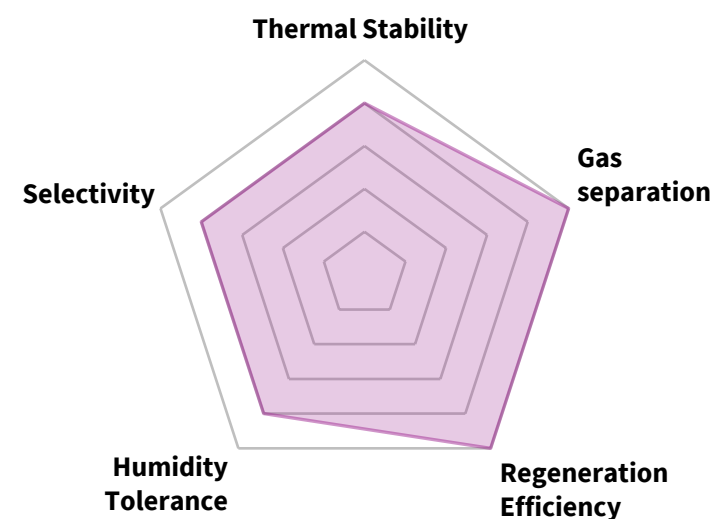


Catalysis
Support for metal catalysts, high surface area for chemical reactions, applications in industrial processes



Selective hydrogenation
Support for bimetallic catalysts, hydrogenation of nitrobenzene, production of chemical compounds

PERFORMANCE HIGHLIGHTS



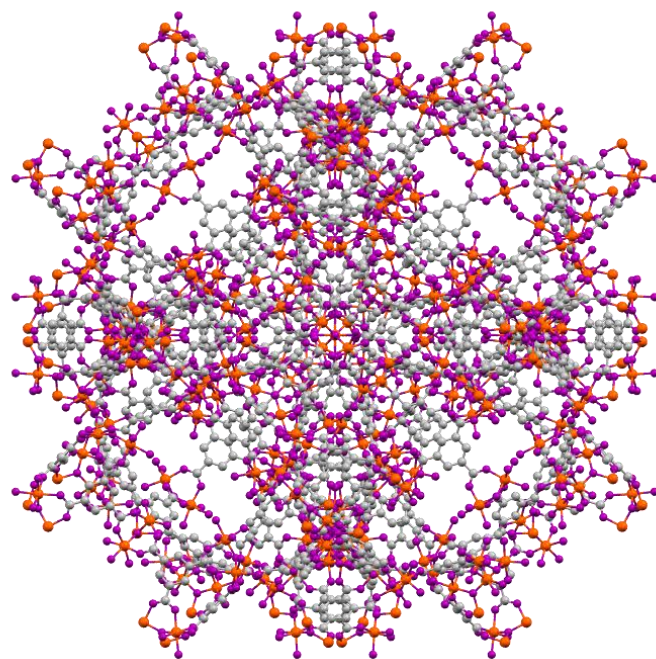
WHY CHOOSE MERYT-MIL-100(Cr)?

- ✓ Good for gas separation
- ✓ Good humidity tolerance
- ✓ Good thermal stability
- ✓ High performance in advanced membranes
- ✓ Good regeneration

MERYT MIL-100(Fe)

Iron-based MOF for adsorption and catalysis

MERYT-MIL-100(Fe) is a stable iron-based metal organic framework designed for gas adsorption, gas separation and catalysis



KEY PROPERTIES



Surface area
Micro-/Mesoporous
1400 – 3200 m²/g



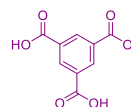
Pore size
~ 0.3 – 1 nm



Thermal stability
Up to 280 °C



Metal center
Iron (Fe)



Ligand
Trimesic acid



Form
Orange powder/Pellets



Particle size
200 – 500 nm



ADSORPTION PERFORMANCE

Measurement conditions	Sample	Analysis
77 K, N ₂	MERYT-MIL-100(Fe)	BET: ≥1300 m ² /g

APPLICATIONS



Gas Adsorption and capture
CO₂, H₂, CH₄ capture, gas separation



Pollutant capture
Widely used to remove dyes, pesticides, antibiotics and pollutants



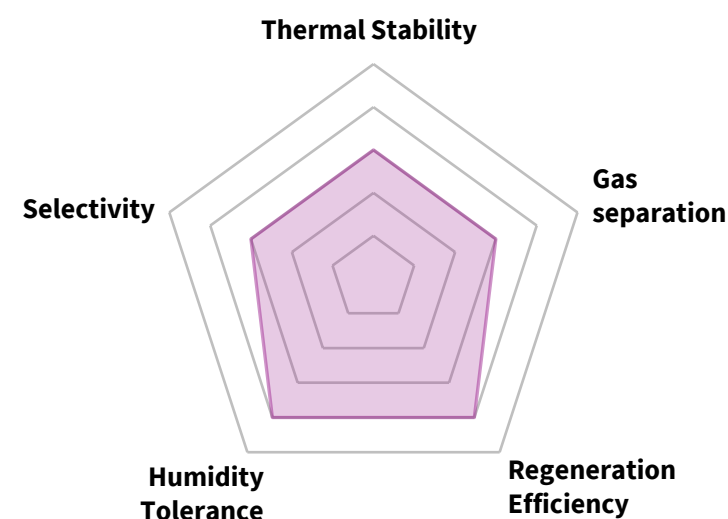
Catalysis and Photo-Fenton
Advanced oxidation, pollutant degradation, peroxide hydrogen activation



Biomedicine
Useful in drug delivery, biomaterials or nanomedicine



PERFORMANCE HIGHLIGHTS



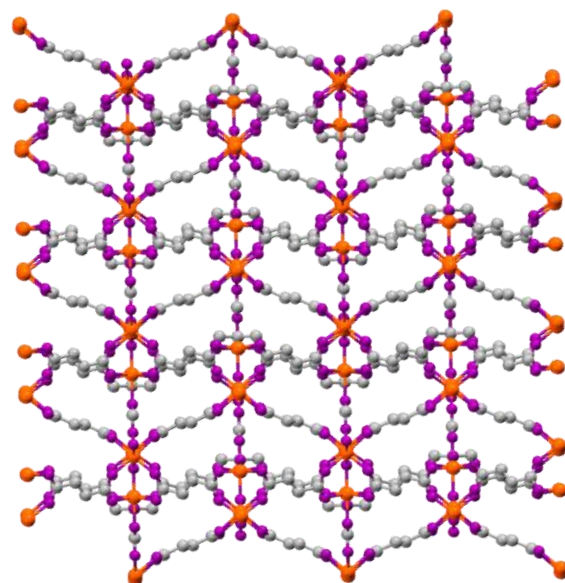
WHY CHOOSE MERYT-MIL-100(Fe)?

- ✓ Extremely high surface area
- ✓ Very useful in Fenton and photo-Fenton processes
- ✓ Cost-effective and relatively non-toxic iron
- ✓ Excellent for adsorbing large molecules
- ✓ Highly suitable for drug delivery

MERYT MIL-88A(Fe)

Iron-based MOF for environmental remediation and catalysis

MERYT-MIL-88A(Fe) is an iron-based metal organic framework designed for environmental remediation, catalysis and biomedicine applications



KEY PROPERTIES



Surface area
4.22 – 209 m²/g



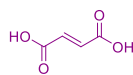
Pore size
~ 0.4 – 2 nm



Thermal stability
Up to 280 °C



Metal center
Iron (Fe)



Ligand
Fumaric acid



Form
Orange powder/Pellets



Particle size
100 – 200 nm



ADSORPTION PERFORMANCE

Measurement conditions	Sample	Analysis
77 K, N ₂	MERYT-MIL-88A(Fe)	BET: ≥ 28 m ² /g

APPLICATIONS



Bacterial removal

Removal of pathogenic microorganisms from water



Pollutant degradation

Removal of antibiotics, pesticides degradation, treatment of contaminated water



Catalysis and Photo-Fenton

Electrocatalysis, hybrid catalytic support, efficiency in advanced oxidation systems

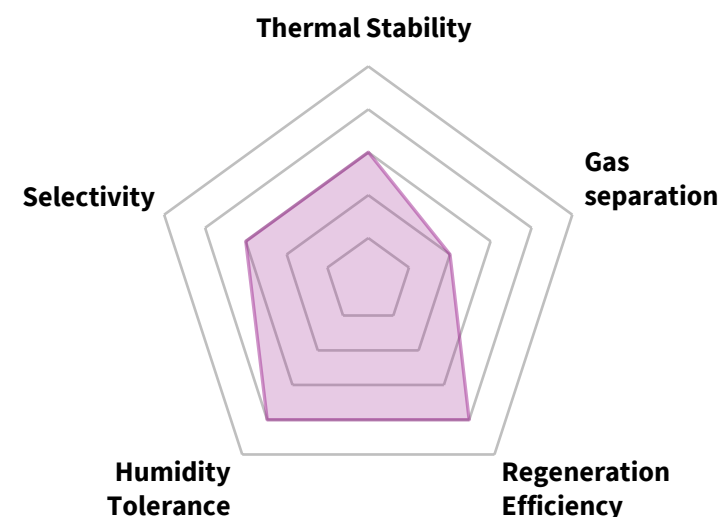


Environmental application

Water purification, removal of emerging pollutants, green chemistry technologies



PERFORMANCE HIGHLIGHTS



WHY CHOOSE MERYT-MIL-88A(Fe)?



Excellent for environmental remediation



Emerging electrocatalytic applications



Flexible and reactive material



Fenton catalyst

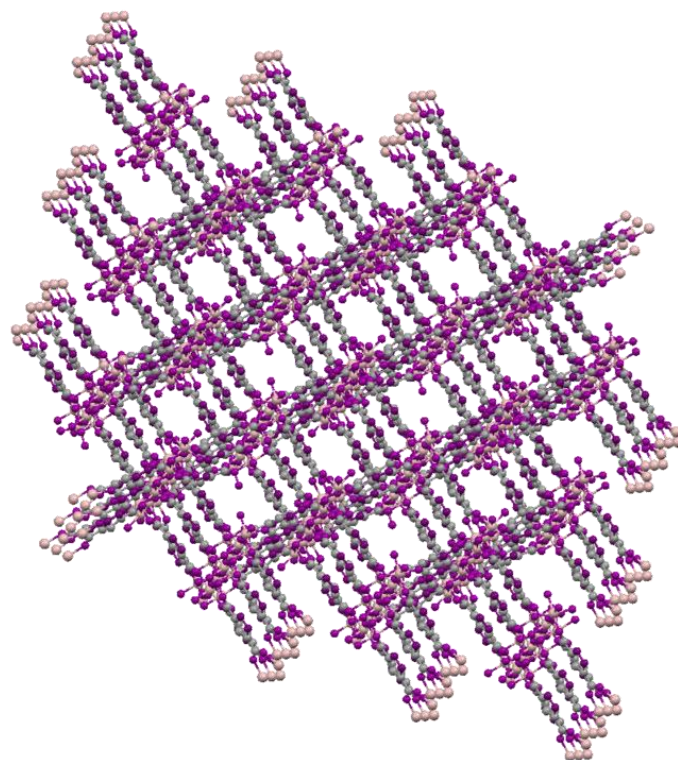


Bacterial removal

MERYT MOF-303

Aluminum-based MOF for water harvesting

MERYT-MOF-303 is an aluminum-based metal organic framework designed for water and gas adsorption



KEY PROPERTIES



Surface area
Ultramicroporous
600–1500 m²/g



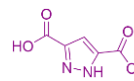
Pore size
~ 0.3 – 0.5 nm



Thermal stability
Up to 350 °C



Metal center
Aluminum (Al)



Ligand
3,5-pyrazoledicarboxylic acid



Form
White powder/Pellets



Particle size
~ 200 nm



ADSORPTION PERFORMANCE

Measurement conditions	Sample	Analysis
77 K, N ₂	MERYT-MOF-303	BET: ≥ 1100 m ² /g

APPLICATIONS



Water Adsorption
In dry air, efficient adsorption at low humidity, solar regeneration possible



Pollutant Capture
Widely used to remove dyes, pesticides, drugs and pollutants



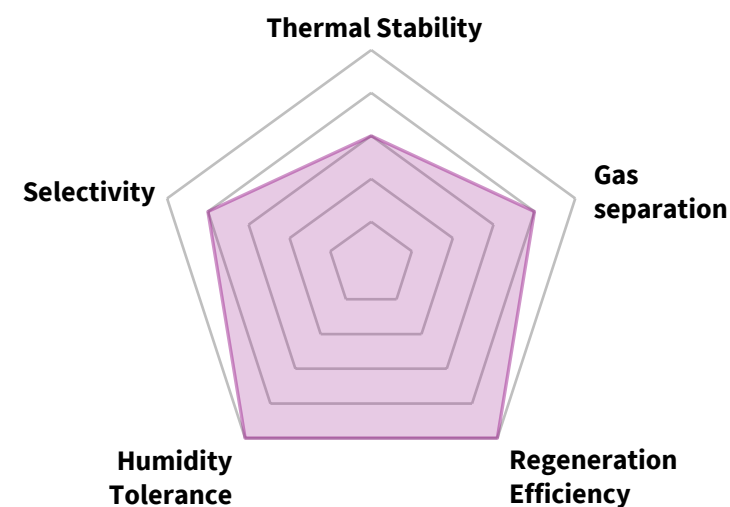
CO₂ Adsorption
High selectivity, good performance at 1 bar, stable over multiple cycles



Gas Separation
CO₂ / N₂, CO₂ / CH₄ or light mixtures



PERFORMANCE HIGHLIGHTS



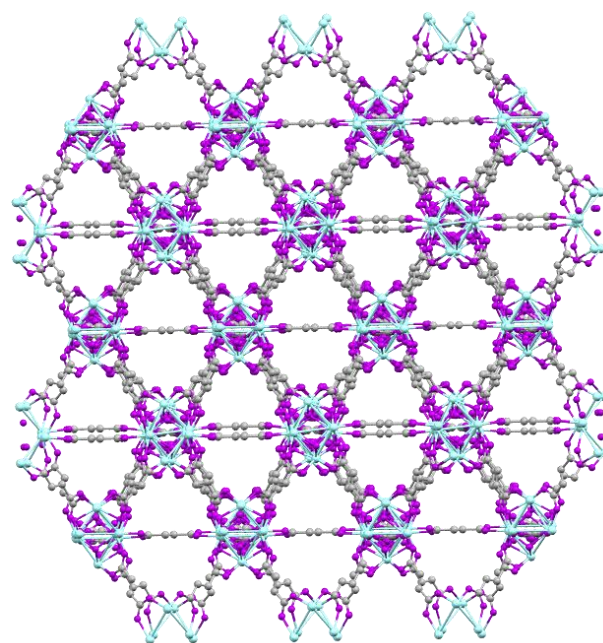
WHY CHOOSE MERYT-MOF-303?

- ✓ High water absorption
- ✓ Repeated cycles without degradation
- ✓ Good stability in water
- ✓ Proven performance under real-world conditions
- ✓ Good gas adsorption

MERYT MOF-801

Zirconium-based MOF for water harvesting and gas adsorption

MERYT-MOF-801 is a highly stable zirconium-based metal organic framework designed for water harvesting, refrigeration and gas adsorption



KEY PROPERTIES



Surface area
700–1200 m²/g



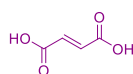
Pore size
~ 0.48 – 0.74 nm



Thermal stability
Up to 350 °C



Metal center
Zirconium (Zr)



Ligand
Fumaric acid



Form
White powder/Pellets



Particle size
500 nm



ADSORPTION PERFORMANCE

Measurement conditions	Sample	Analysis
77 K, N ₂	MERYT-MOF-801	BET: ≥ 900 m ² /g

APPLICATIONS



Water Adsorption

In dry air, efficient adsorption at high humidity, solar regeneration possible



Adsorption cooling

Used in sustainable cooling, adsorption heat pumps



CO₂ Adsorption

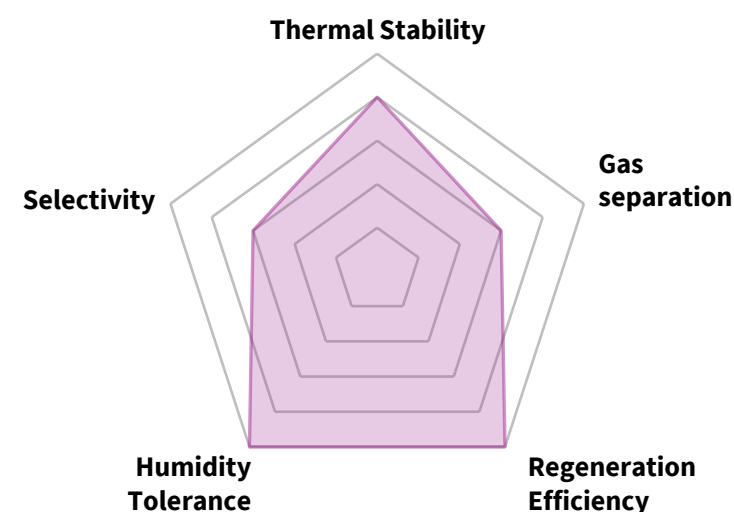
Moderated selectivity, but very stable over multiple cycles



Gas Separation

CO₂ / N₂, CO₂ / CH₄ or light mixtures

PERFORMANCE HIGHLIGHTS



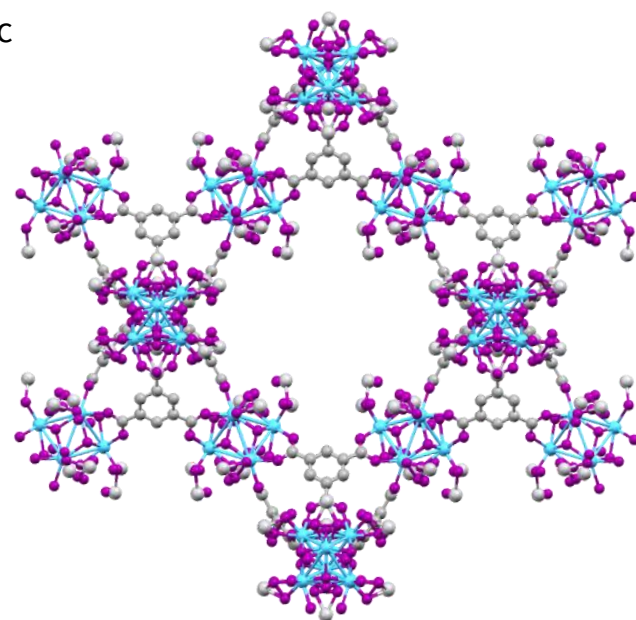
WHY CHOOSE MERYT-MOF-801?

- ✓ High water absorption
- ✓ Repeated cycles without degradation
- ✓ Very good chemical stability
- ✓ Capable of working in real-world conditions
- ✓ Good gas adsorption

MERYT MOF-808

Zirconium-based MOF for adsorption and catalysis

MERYT-MOF-808 is a stable zirconium-based metal organic framework designed for catalysis, gas separation and pollutant capture



KEY PROPERTIES



Surface area
Mesoporous
1400 – 2200 m²/g



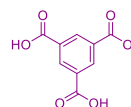
Pore size
0.3 - 0.7;
1.1 – 1.6 nm



Thermal stability
Up to 300 °C



Metal center
Zirconium (Zr)



Ligand
Trimesic acid



Form
White powder/Pellets



Particle size
1000 nm



ADSORPTION PERFORMANCE

Measurement conditions
77 K, N₂

Sample
MERYT-MOF-808

Analysis
BET: ≥1600 m²/g

APPLICATIONS



Gas Adsorption and capture
Good performance and excellent durability in real-world conditions



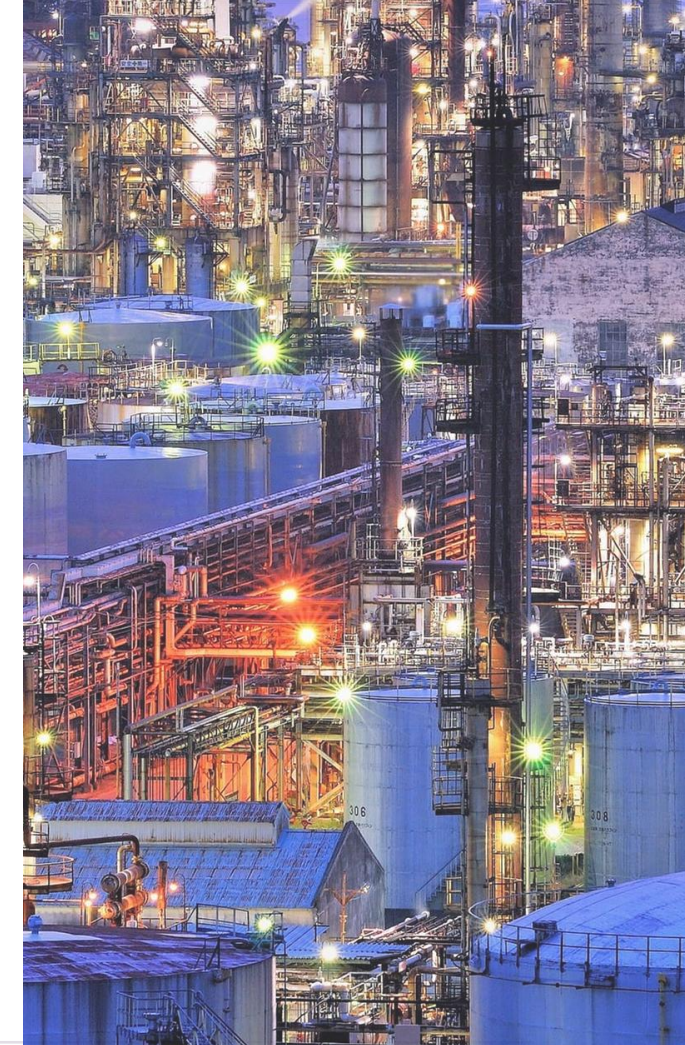
Pollutant capture
Widely used to remove dyes, pesticides, drugs and pollutants



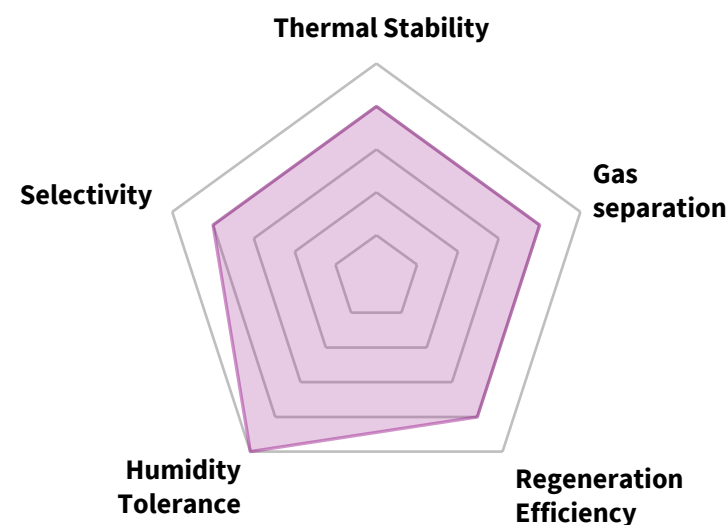
Catalysis
Zr-O sites can act as active sites for: oxidation, acid-base reactions and selective organic reactions



Catalytic support
It is frequently used to immobilize metal nanoparticles, enzymes and homogeneous catalysts...



PERFORMANCE HIGHLIGHTS



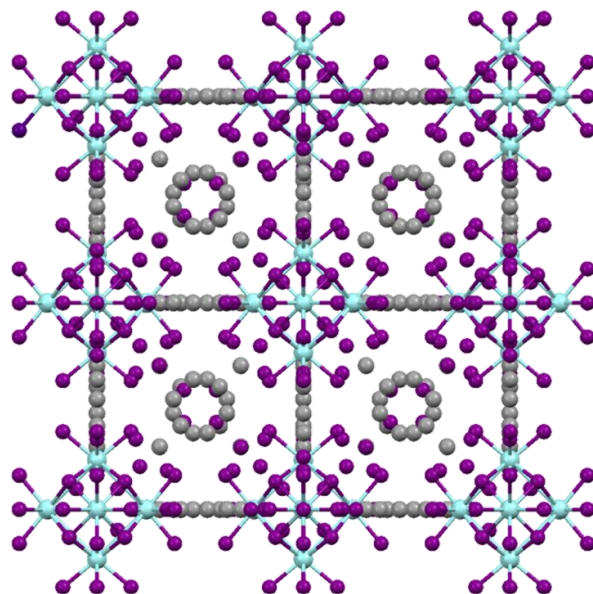
WHY CHOOSE MERYT-MOF-808?

- ✓ Highly stable in different conditions
- ✓ CO₂ capture
- ✓ Gases and pollutants capture capacity
- ✓ Heterogeneous catalysis
- ✓ Good regeneration

MERYT UiO-66

Zirconium-based MOF for catalysis

MERYT-UiO-66 is a highly stable zirconium-based metal organic framework designed for gas separation, pollutant capture and catalysis



KEY PROPERTIES



Surface area
Microporous
800–1600 m²/g



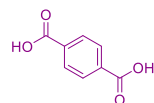
Pore size
~ 0.35 – 1.5 nm



Thermal stability
Up to 500 °C



Metal center
Zirconium (Zr)



Ligand
Terephthalic acid



Form
White powder/Pellets



Particle size
100 – 200 nm



ADSORPTION PERFORMANCE

Measurement conditions
77 K, N₂

Sample
MERYT-UiO-66

Analysis
BET: ≥1000 m²/g

APPLICATIONS



Gas Adsorption and capture

CO₂ capture, gas separation, removal of organic pollutants, heavy metal adsorption



Catalysis

Acid catalyst, photocatalyst or catalytic support (degradation of drugs, biodiesel production, organic reactions, etc.)



Sensor

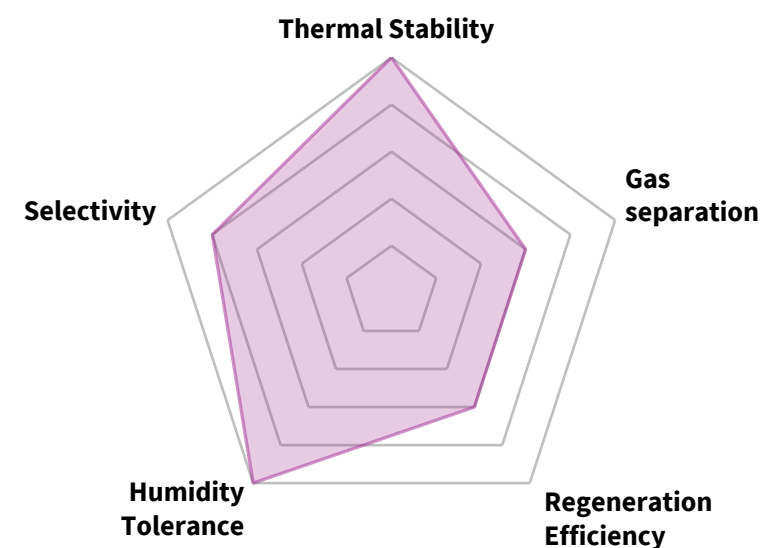
Detect: Metal ions, toxic compounds or organic molecules



Biomedicine

Useful in drug delivery, Biomaterials or nanomedicine

PERFORMANCE HIGHLIGHTS



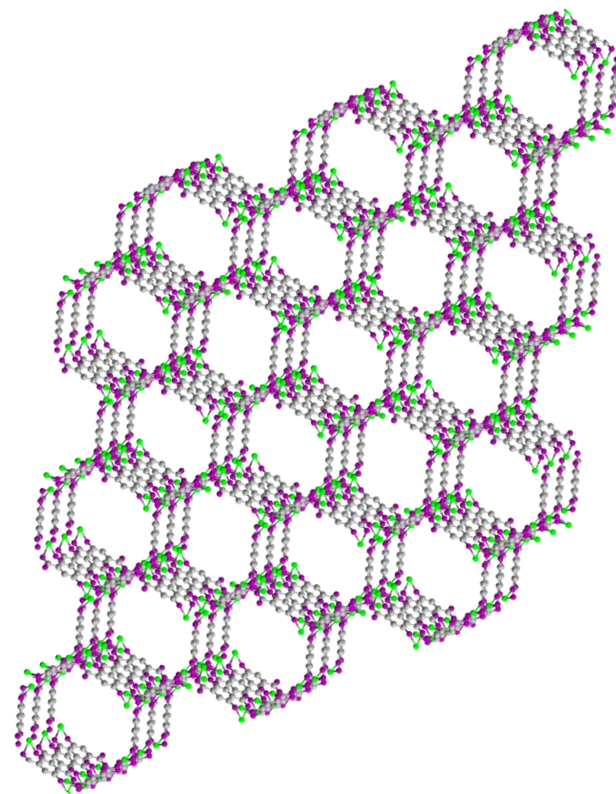
WHY CHOOSE MERYT-UiO-66?

- ✓ Highly stable in different conditions
- ✓ Good surface area
- ✓ Gases and pollutants capture capacity
- ✓ Easy post-synthetic modification
- ✓ Chemical versatility

MERYT MOF-74(Mg)

Magnesium-based MOF for CO₂ capture and gas separation

MERYT-MOF-74(Mg) is a magnesium-based metal organic framework designed for gas separation and CO₂ capture



KEY PROPERTIES



Surface area
400–1200 m²/g



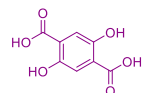
Pore size
~ 1.2 nm



Thermal stability
Up to 200 °C



Metal center
Magnesium (Mg)



Ligand
2,5-dihydroxyterephthalic acid



Form
Pale orange powder/pellets



Particle size
3 – 5 µm



ADSORPTION PERFORMANCE

Measurement conditions	Sample	Analysis
77 K, N ₂	MERYT-MOF-74(Mg)	BET: ≥ 1100 m ² /g

APPLICATIONS



Catalysis and electrochemical

Active sites for: acid-base reactions and small molecules activation; also, it can act like batteries



H₂ storage

The material's open metal sites and porous structure enable strong interactions with hydrogen molecules



CO₂ Adsorption

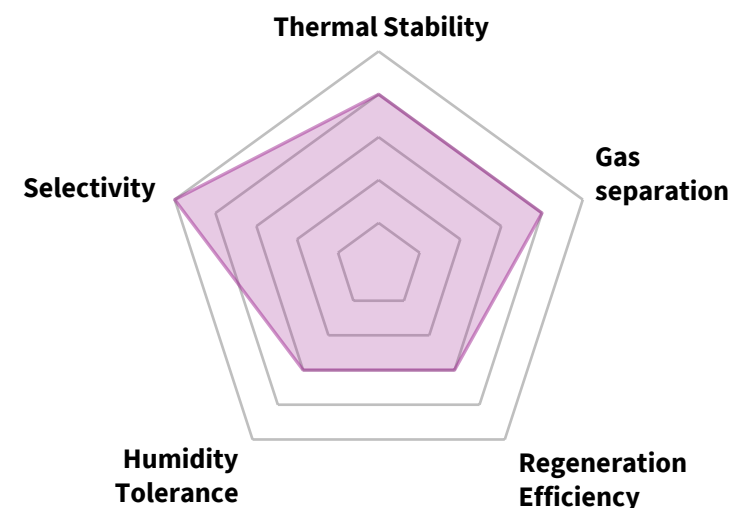
Moderated selectivity, but very stable over multiple cycles



Gas Separation

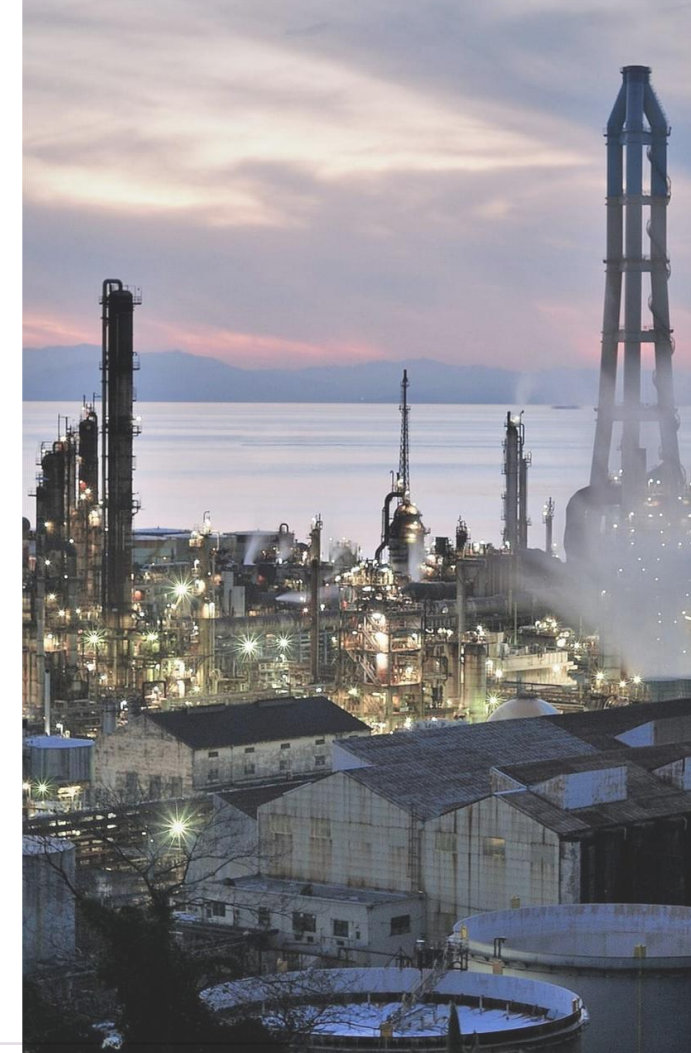
CO₂ / N₂, CO₂ / CH₄ or light mixtures

PERFORMANCE HIGHLIGHTS



WHY CHOOSE MERYT-MOF-74(Mg)?

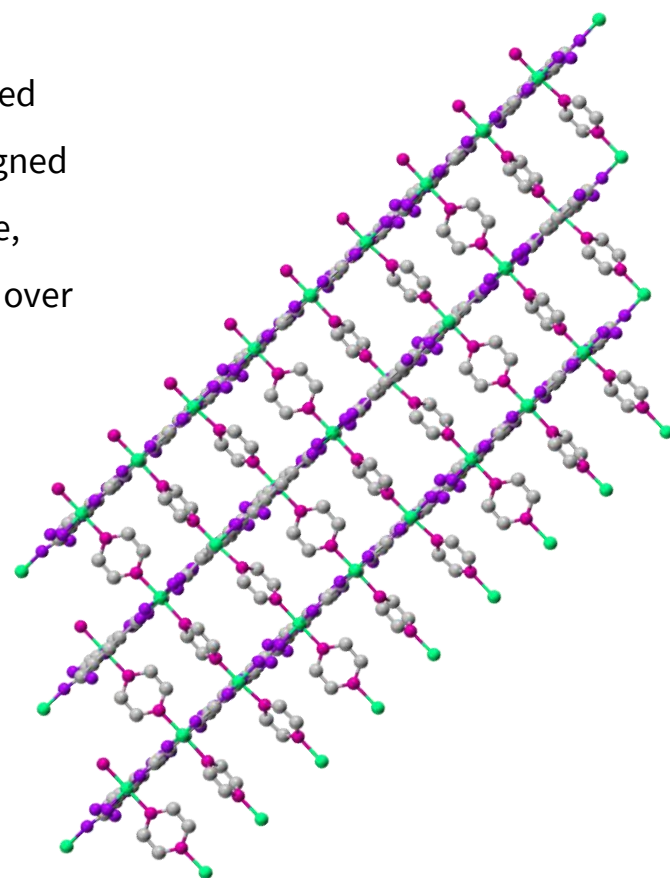
- ✓ Low-pressure CO₂ capture
- ✓ Selective gas separation
- ✓ Applications where open metal sites are key
- ✓ Electrochemical applications
- ✓ Gas separation



MERYT TYUT-12

Nickel-based MOF for hydrocarbons separation

MERYT-TYUT-12 is a nickel-based metal organic framework designed for propane, propylene, ethane, acetylene, and CO₂ adsorption over ethylene



KEY PROPERTIES



Surface area
400–1200 m²/g



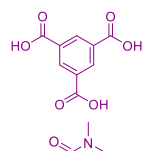
Pore size
~ 0.59 nm



Thermal stability
Up to 200 °C



Metal center
Nickel (Ni)



Ligand
Trimesic acid
Dimethylformamide



Form
Green powder/pellets



Particle size
30 – 50 µm



ADSORPTION PERFORMANCE

Measurement conditions
77 K, N₂

Sample
MERYT-TYUT-12

Analysis
BET: ≥ 355 m²/g

APPLICATIONS



Separation of light hydrocarbon mixtures

Efficient separation of ethylene from other light hydrocarbons; purification of ethylene to a purity in complex mixtures



Petrochemical industry

Optimisation of olefin production processes: more efficient and 'green' alternative to cryogenic or energy-intensive methods

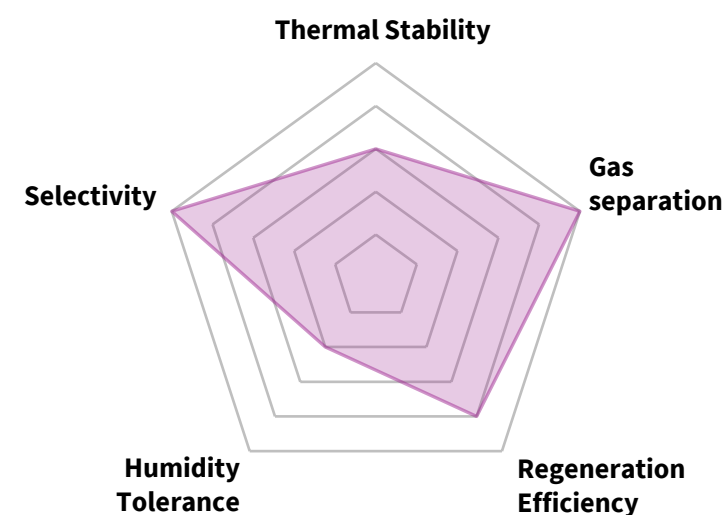


Advanced gas separation

Design of new selective adsorption systems, with the potential to replace cryogenic distillation processes



PERFORMANCE HIGHLIGHTS



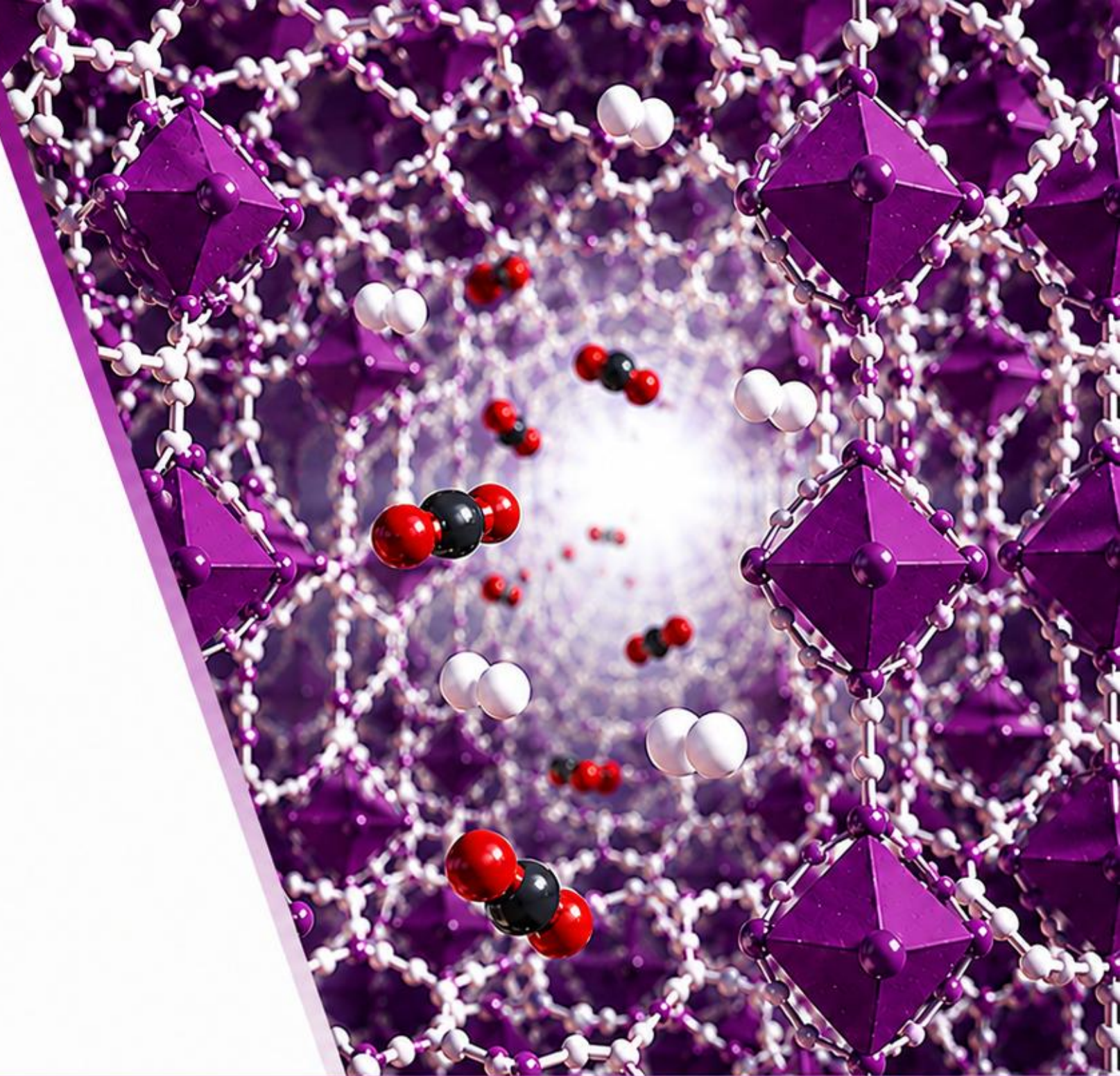
WHY CHOOSE MERYT-TYUT-12?

- ✓ Exceptional selectivity for olefins
- ✓ Ethylene purification
- ✓ Excellent performance in breakthrough processes
- ✓ Highly optimised structural design
- ✓ Good regeneration



INNOVATE MATERIALS FOR REAL CHALLENGES

MERYT Catalysts & Innovation
designs supramolecular
materials used as catalysts and
adsorbents



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C/Berlín, Parcela 3F
Polígono Industrial Cabezo
Beaza



SCAN TO KNOW MORE