Promethean Particles®

TECHNICAL DATA SHEET

ProMOF® 4200

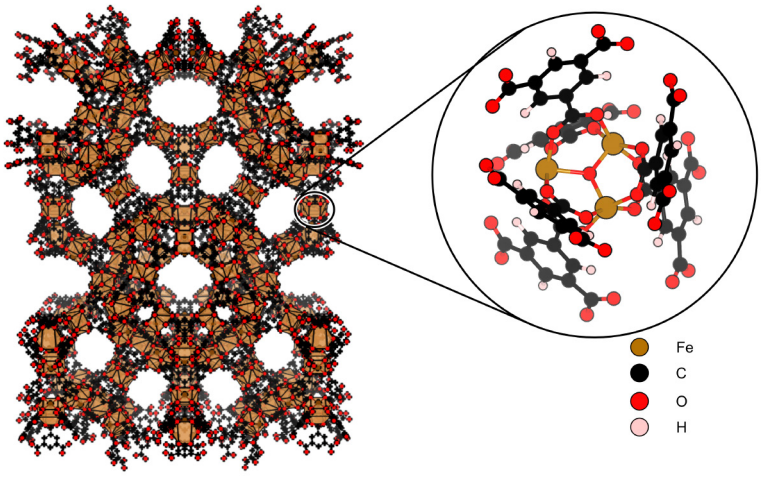
A high-quality MIL-100 (Fe) based metal-organic framework (MOF) designed for use in a wide range of applications including atmospheric water harvesting and dehumidification. ProMOF 4200 exhibits very high adsorption of water, and particularly excels under conditions where the partial pressure of water is high.

Specifications

Synonym	MIL-100 (Fe)
Metal Ion(s)	Iron (Fe)
Empirical Formula	$H_{27}C_{66}O_{31}Fe_{18}$
Molecular Weight	2,496.3
CAS Number	-

Structure

ProMOF 4200 is a complex structure comprised of three Fe (III) ions which create clusters around a central μ-3 oxygen atom. These clusters are linked by trimesate to form an extended hierarchical framework.



Appearance

ProMOF 4200 is a brown solid which can be supplied in the form of a powder.

Typical Properties

Surface Area (powder)	>1,500 m^2/g	N_2 adsorption by BET
Bulk density (powder)	0.3 g/cm^3	
Mean crystallite length	10.77 ± 2.62 μm	SEM Imaging (agglomerates, not primary particles)

Version: 001 Issued: 20th February 2026

Due to a policy of continued development, we reserve the right to alter or amend any published specification without notice.

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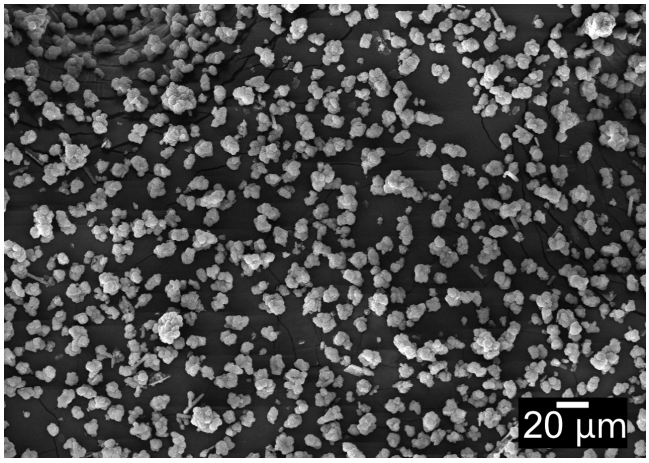
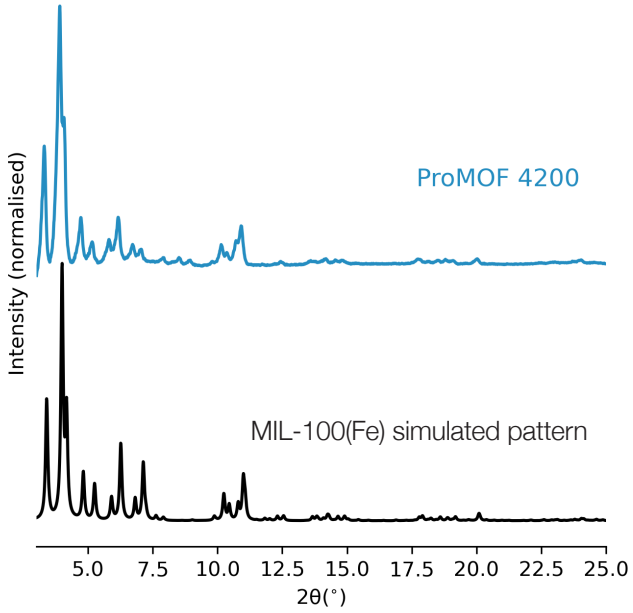
Scanning Electron Microscopy (SEM) Imaging



Micrographs show that the powder is comprised of roughly cube-shaped particles comprised of layers of agglomerated crystallites.

Using these micrographs, the diameter of the agglomerates was measured in the program 'Fiji' using line profiles, and all measured particles were plotted into a histogram. From this, the mean particle size and standard deviation were extracted. The mean agglomerate size is 10.77 µm, and standard deviation is 2.62 µm.

Powder X-Ray Diffraction (PXRD)



The PXRD pattern of ProMOF 4200 matches the pattern generated by SCXRD of MIL-100(Fe) reported in the literature, meaning that the sample contains pure MIL-100(Fe).

Further Information

ProMOF 4200 can be activated at temperatures as low as 40°C. For PXRD analysis, ensure to place in an oven above 100°C and perform analysis immediately upon removal, adsorption of water makes the sample appear 'less crystalline'.

Information about specific shaped forms, production volumes, lead times and safety data sheets are availabile on request.

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