Promethean Particles®

TECHNICAL DATA SHEET

ProMOF® 1300

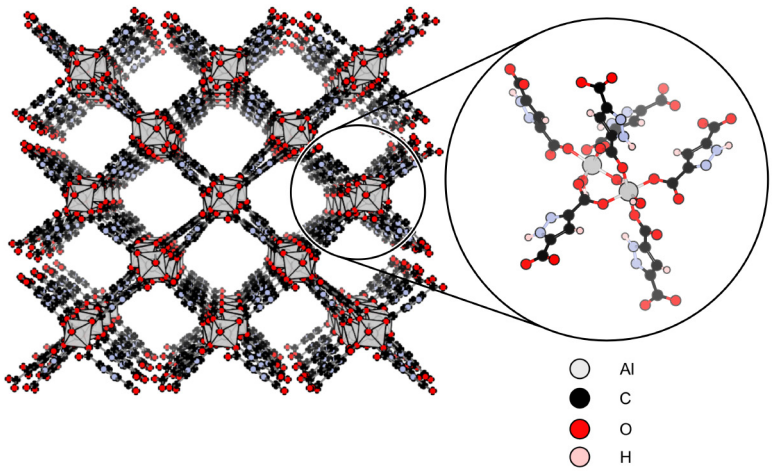
A high-quality MOF-303 metal-organic framework (MOF) designed for use in atmospheric water harvesting applications. ProMOF 1300 is established as one of the best performing water harvesting materials discovered and particularly excels at low partial pressures.

Specifications

Synonym	MOF-303
Metal Ion(s)	Aluminium (Al)
Empirical Formula	$C_5H_3N_2O_5Al$
Molecular Weight	197.06
CAS Number	2050043-41-7

Structure

ProMOF 1300 is composed of aluminium nodes linked by pyrazole dicarboxylate, where the extended framework adopts a primitive winerack structure.



Appearance

ProMOF 1300 is a white powder which can be supplied in the form of a powder or shaped into granules.

Typical Properties

Surface Area (powder)	>1,100 m^2/g	N_2 adsorption by BET
Bulk density (powder)	0.51 g/cm^3	
Mean crystallite length	0.54 µm	SEM Imaging

Version: 001 Issued: 20th February 2026

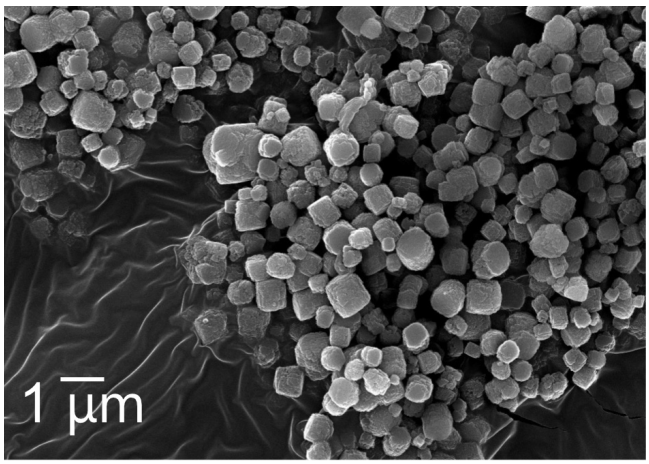
Promethean Particles Ltd
1-3 Genesis Park,
Midland Way
Nottingham
NG7 3EF
United Kingdom

+44 (0) 115 967 8119
info@proparticles.co.uk
prometheanparticles.co.uk
linkedin.com/company/promethean-particles

Promethean Particles®

TECHNICAL DATA SHEET

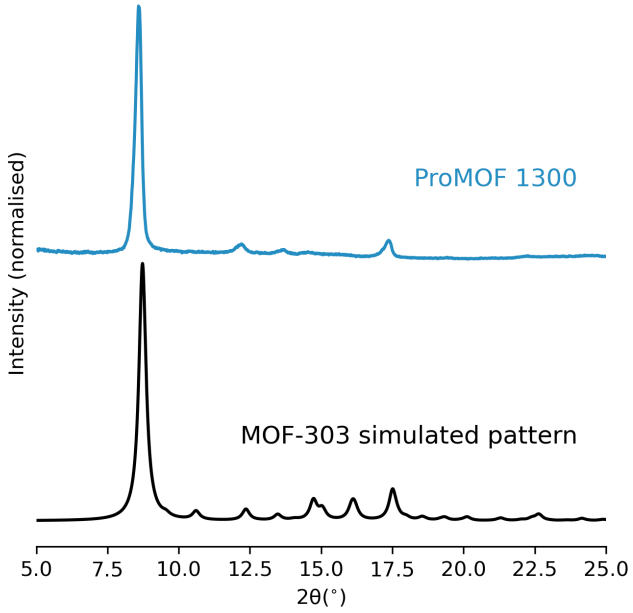
Scanning Electron Microscopy (SEM) Imaging



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 particles 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 particle size is 0.54 µm, and standard deviation is 0.12 µm.

Powder X-Ray Diffraction (PXRD)



The PXRD pattern of ProMOF 1300 matches the pattern generated by SCXRD of MOF-303 reported in the literature, meaning that the sample contains pure MOF-303, with the addition of a peak corresponding to water.

Further Information

ProMOF 1300 may have naturally adsorbed gas species during storage. Please activate ProMOF 1300 before use by heating in an oven at 100°C for ≥8 hours. For best results, use a vacuum or forced-air oven.

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

Version: 001 Issued: 20th February 2026

Promethean Particles Ltd
1-3 Genesis Park,
Midland Way
Nottingham
NG7 3EF
United Kingdom

+44 (0) 115 967 8119
info@proparticles.co.uk
prometheanparticles.co.uk
linkedin.com/company/promethean-particles