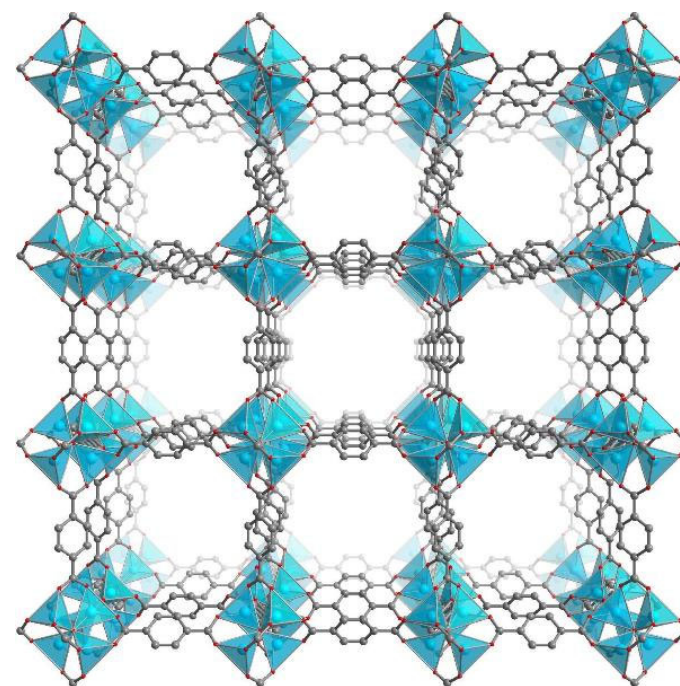


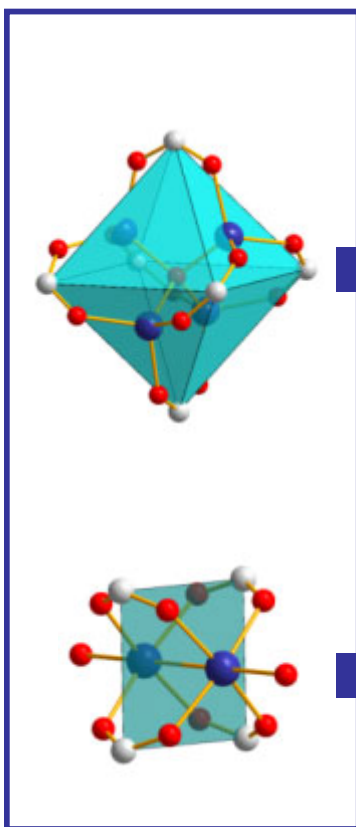
MOF Application Book for Air Quality

Innovative Porous Adsorbents

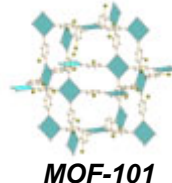
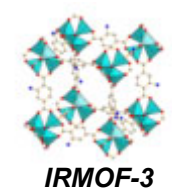
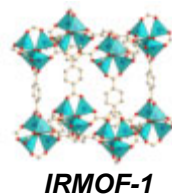
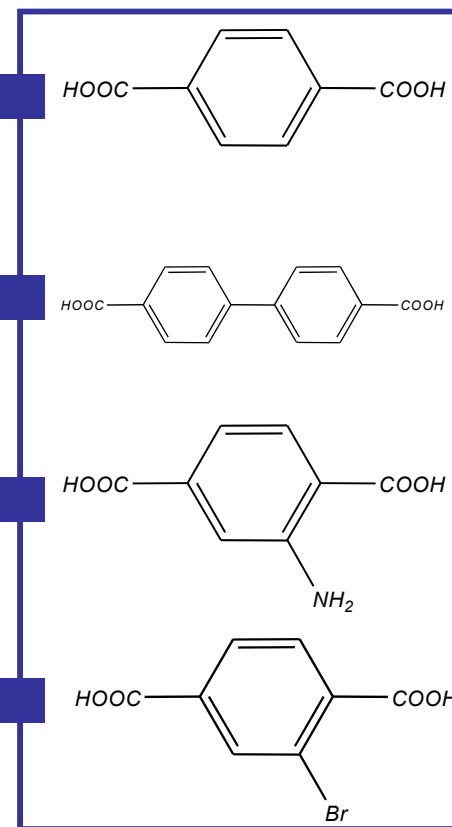


MOF : Hybrid nanoporous crystals

polymetallic clusters
“nodes”



polytopic ligands
“spacers”



Molecular sieve with surface area 1,000 – 4,000 m²/g

Air purification applications

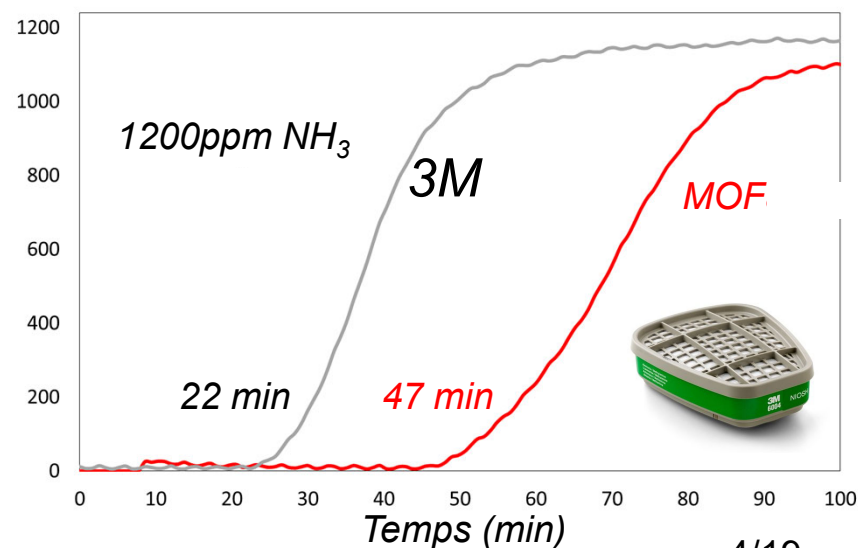
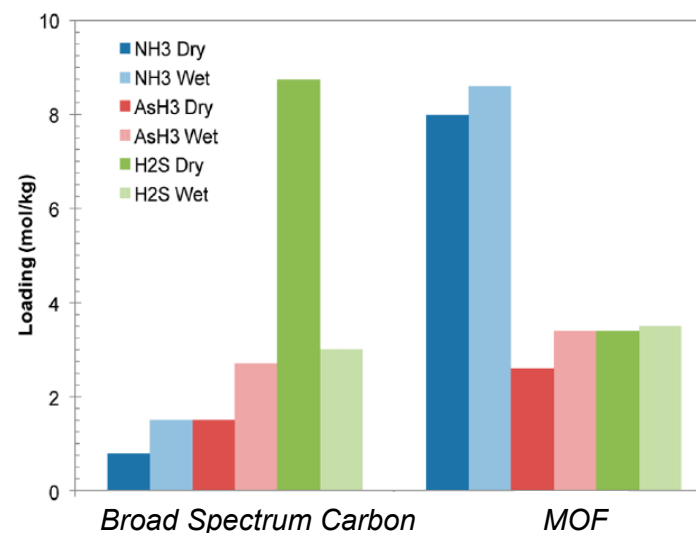
Safety, Security, Health, Environment,
Decarbonation

Air purification against TICs

- **Toxic Industrial Compounds**
 - (NH_3 , H_2S , HCN , AsH_3 ,...)
 - Double adsorption capacity
 - Insensitivity to moisture (unlike Carbons)
 - No release



- **Applications**
 - Respiratory Filter of class B&K (ABEK)
 - CRBN protection
 - Protection of farmers, bio-methanation

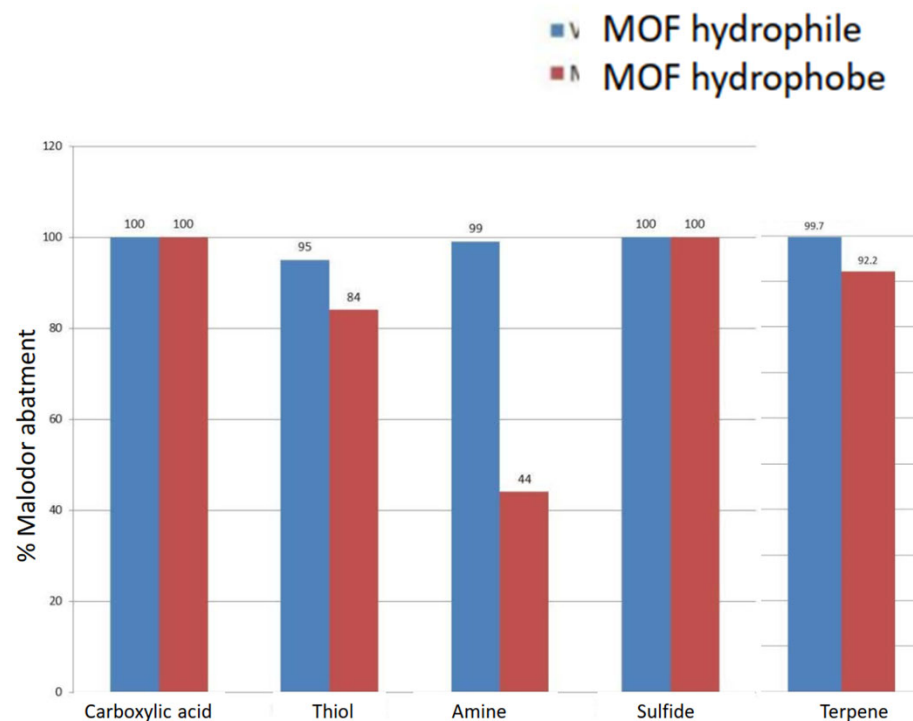




- Adsorption of Malodors
 - Broad spectrum MOF (all classes of malodors)
 - Insensitivity to moisture
 - No/Low release

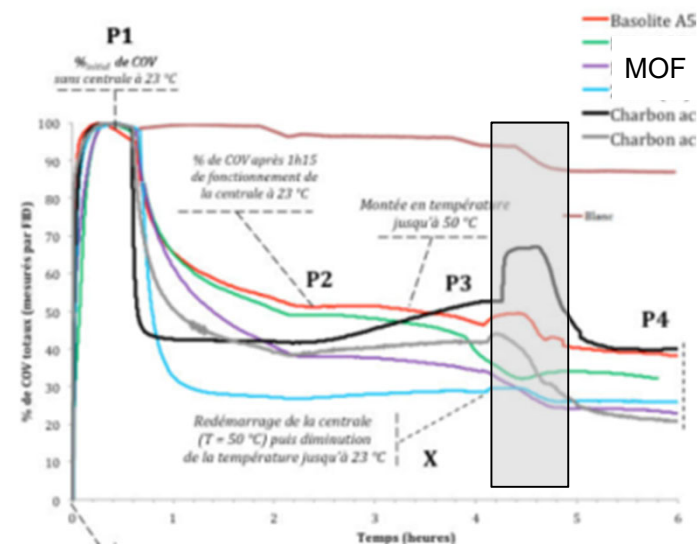
- Applications

- Confined spaces (Subway, AirCraft,....)
- Industrial sites (Oil&Gas)
- Bio-transformation (agriculture)
- Laundries, Hairdresser,...
- Cooking, Kitchens, Restaurants,...
- Food packaging,





- BTX abatment
 - Benzene, Toluene, Xylenes, Styrene
 - Insensitive to moisture
 - No/Low release when temperature rises
- Applications
 - Confined spaces (Subway, AirCraft,....)
 - Indoor polution (Schools closed to traffic)
 - Cars in passive or active mode (outdoor polution)
 - Solvent vapor abatment
 - VOCs rotating wheels for large industrial sites



Active Carbons release VOCs when $T > 50^{\circ}\text{C}$



Atmospheric CO₂ capture

- CO₂ removal from air
 - Very low humidity uptake for HR <15% (-6°C dew point)
 - Easy regeneration for HR<0,5% (- 40°C dew point)
- Applications
 - Faster growing in greenhouses
 - CO₂ free atmosphere for electronics, Li-batteries, ...
 - Lower CO₂ in confined spaces (AirCraft, submarines,)
 - Indoor air quality – regulation at 2.000ppm for classrooms
 - Low energy HVAC in buildings by air recycling
 - COVID post-market for schools and offices

Opening windows to mitigate confinement effects in closed spaces (virus concentration and CO₂ level) such as classrooms is not a long term sanitary solution and is energy consuming (heating & cooling)

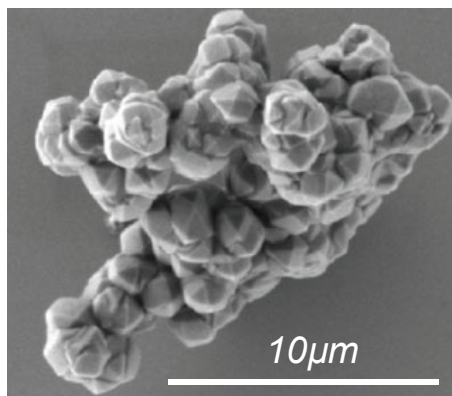


Combined virus filtration and CO₂ abatement is the only sanitary and energy efficient solution

Production at scale

Production by Spay-Drying

- Like production of Dry Milk Powder
- Demonstration at 10kg/hr
- Advantages:
 - Existing production facilities
 - One-step continuous synthesis
 - Drying included
- Crystalline Powders





Production at scale





More info

- <http://www.prodia-mof.eu/>
- <https://www.mofapps.com/>
- <https://www.youtube.com/watch?v=YFnO4PI5hY8>

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