Technical Data Sheet

# ACS Material Covalent Organic Framework-TpPa-1 (COF-TpPa-1)

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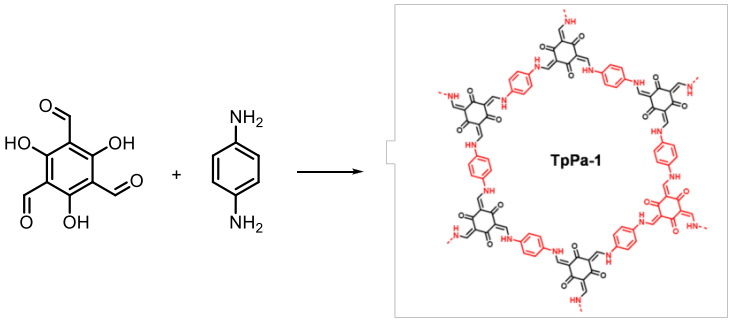
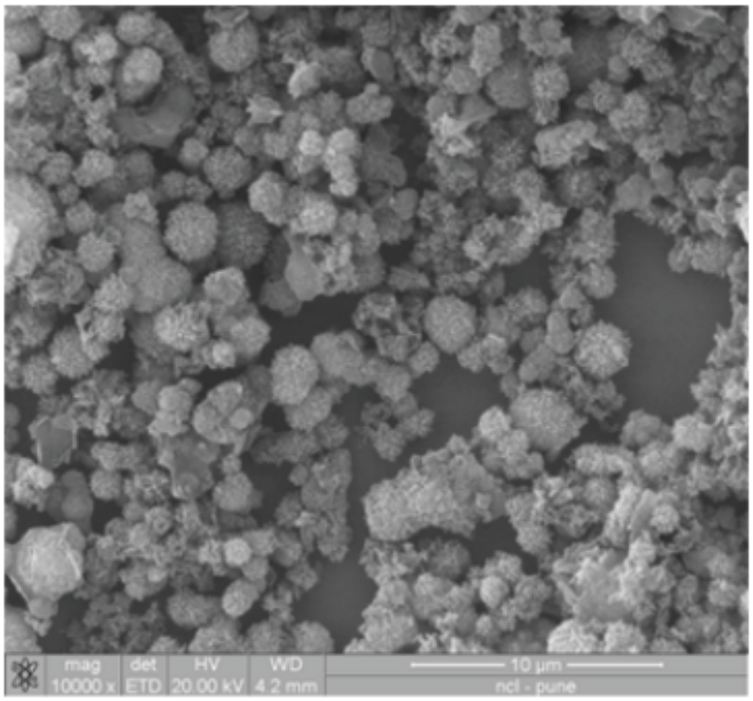
Revision: 101017

## 1. Preparation Method

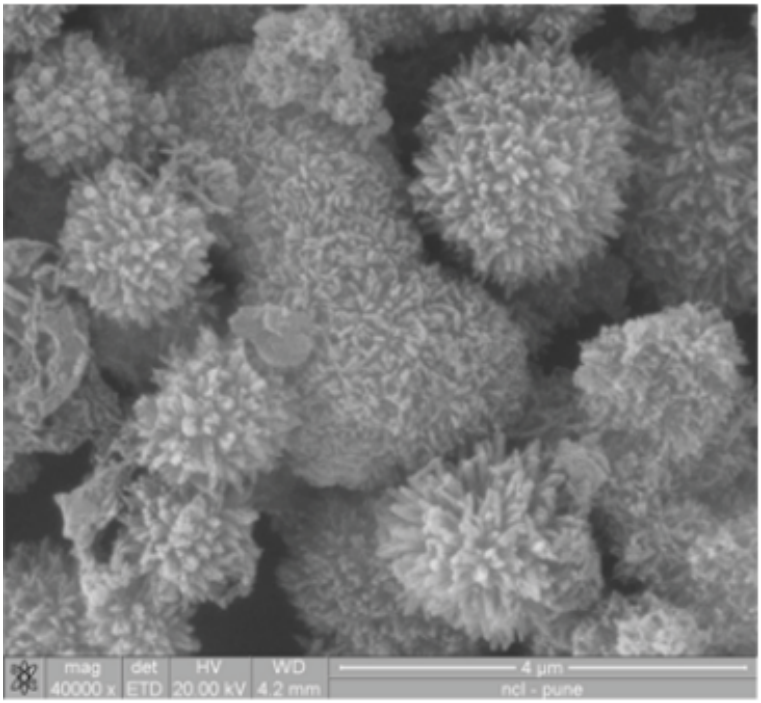



## 2. Characterizations

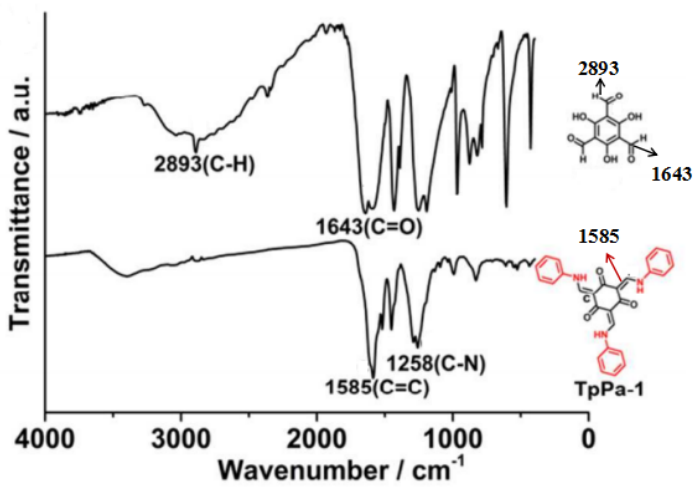
| | |
|---|---|
| **Form:** | Powder crystal<br>A two-dimensional planar material with one-dimensional channels |
| **Solubility:** | Insoluble in water or common organic solvents (N,N-dimethylformamide, tetrahydrofuran, dimethyl sulfoxide, acetone, trichloromethane) |
| **Stability (Tg):** | 300-540 $^{o}$C |
| **BET Surface Area:** | ~1360 $m^2/g$ |
| **Pore Size:** | 1.5-1.8 nm (depending on the R-group, the pore size varies slightly) |
| **R-group:** | $-CH_3/-NO_2/H$ |



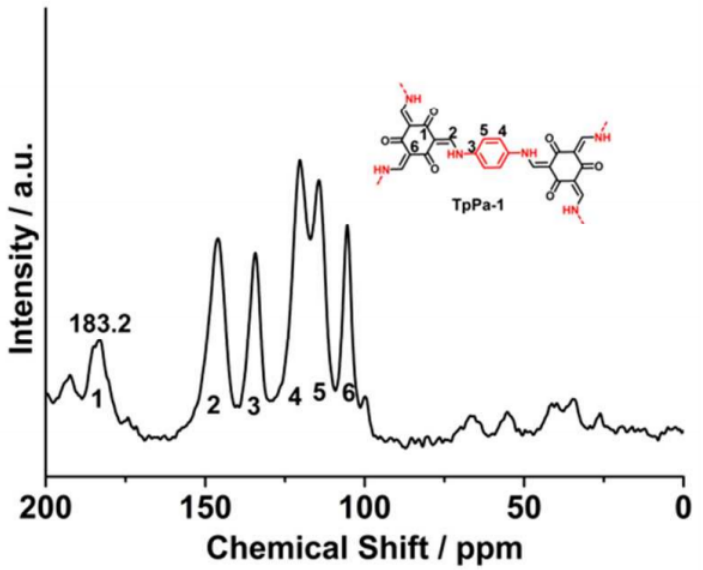

Typical SEM Image (1) of ACS Material COF-TpPa-1



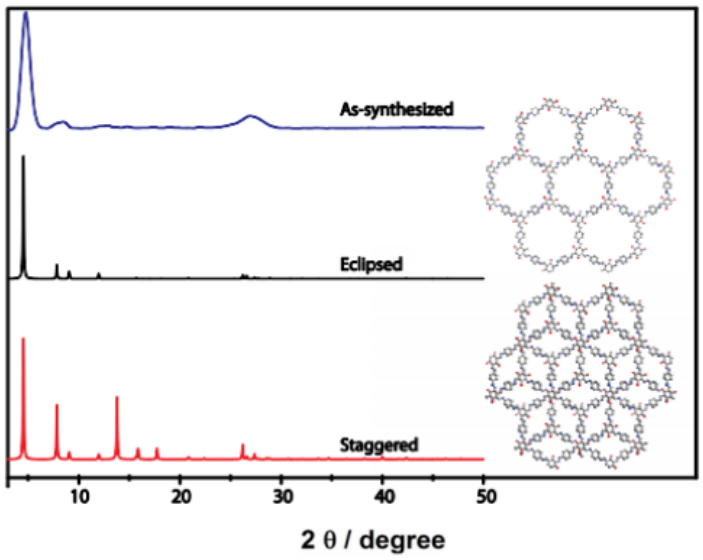

Typical SEM Image (2) of ACS Material COF-TpPa-1



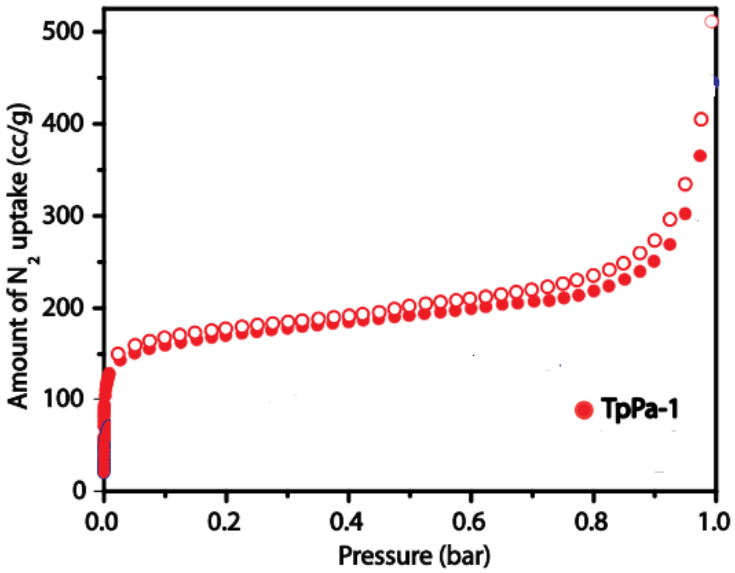

FT-IR Spectra of ACS Material COF-TpPa-1 (red), 1,3,5-triformylbenzene



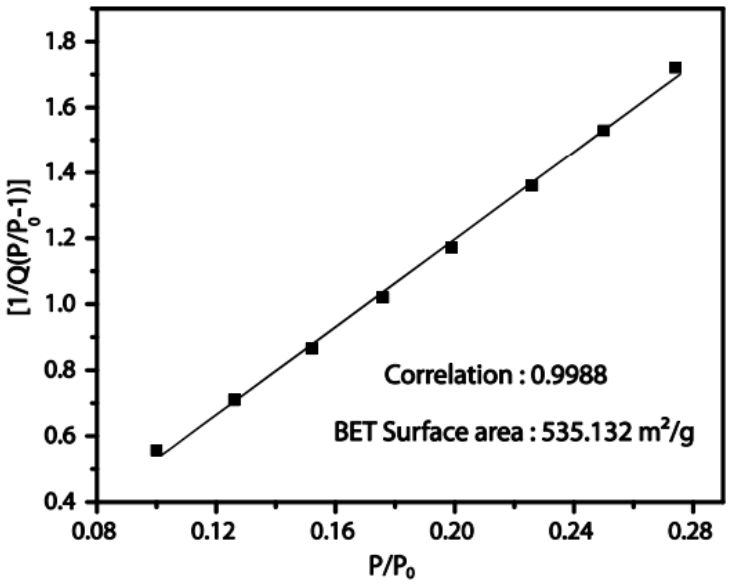

SsNMR Spectra of ACS Material COF-TpPa-1



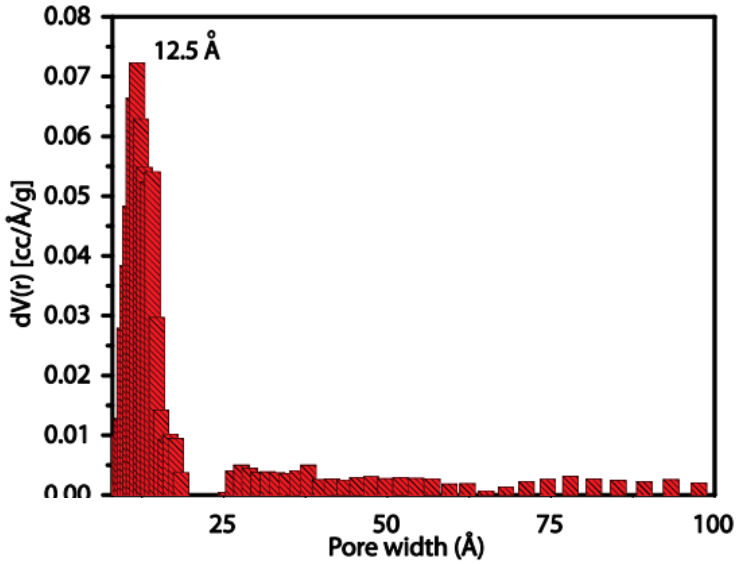

PXRD pattern of As-synthesized ACS Material COF-TpPa-1 (Blue) compared with the Eclipsed (Black) and staggered (Red) stacking models.



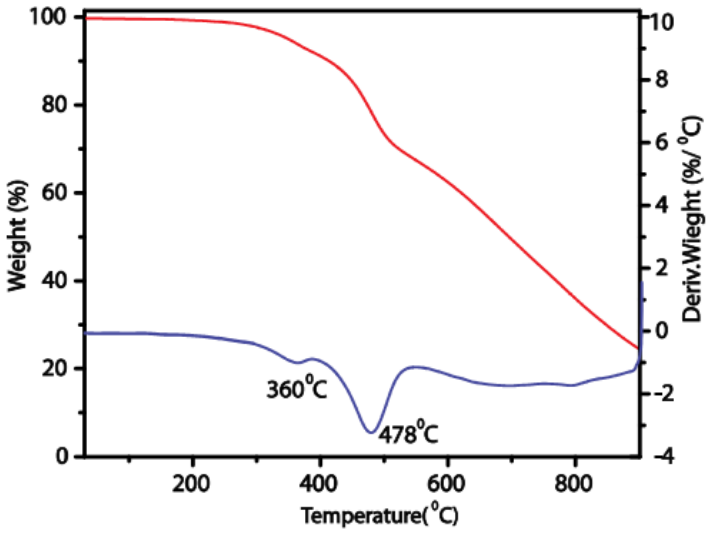

$N_2$ adsorption (filled symbols) and desorption (empty symbols) isotherms of ACS Material COF-TpPa-1




BET surface area plot for ACS Material COF-TpPa-1 calculated from the isotherm




Pore size distribution of ACS Material COF-TpPa-1




TGA data of activated COF TpPa-1 under $N_2$ atmosphere

## 3. Application Fields

1) Metal Coordination Catalysis
2) Recognition of metal ions
3) Bio-Detection
4) Chiral separation