

# Macroporous Oil-sorbents with High Absorption Capacity and High-temperature Tolerance Prepared through Cryo-polymerization

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## 1. Nitrogen Adsorption-Desorption Analysis of the Obtained Cryogels

Nitrogen adsorption-desorption technique is widely adopted to determine the porosity and total surface area of micro/meso-porous materials. As shown in Figure S1, the nitrogen adsorption-desorption isotherms of four cryogels are characteristic of Type II curve with very little hysteresis cycle, suggesting that all the cryogels are macro-porous.

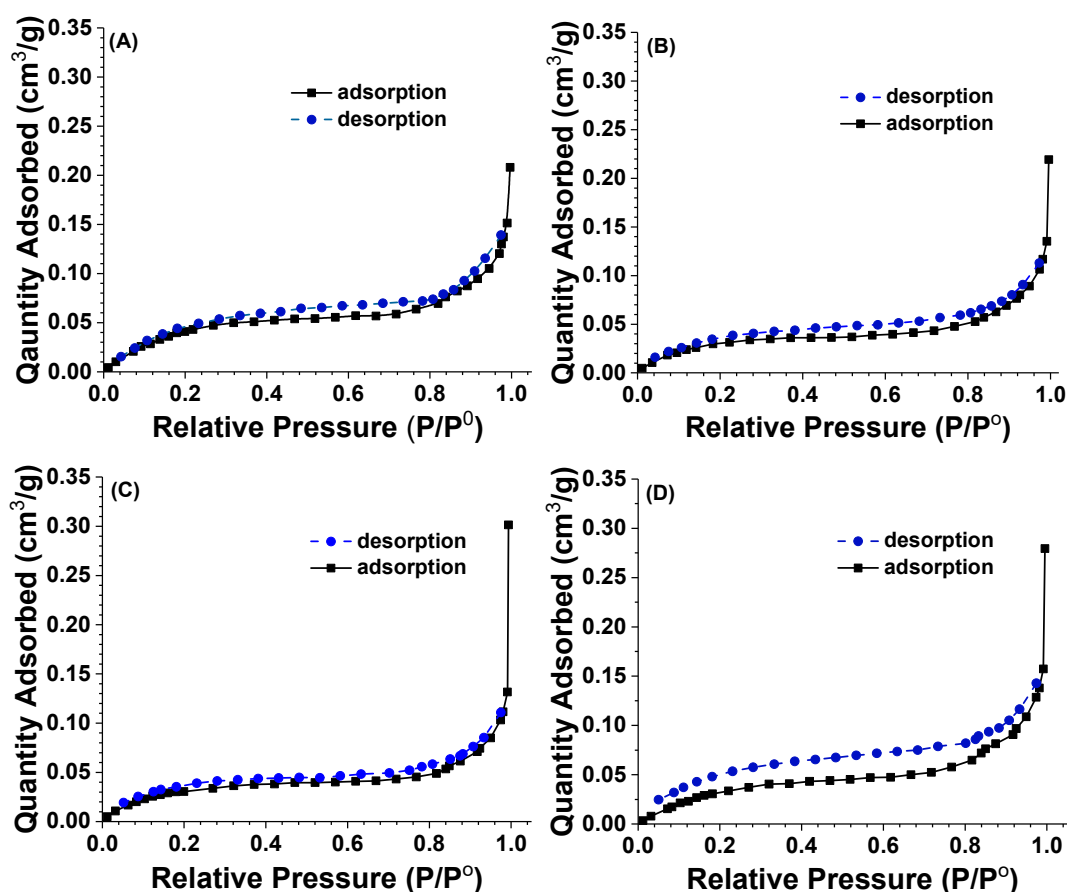
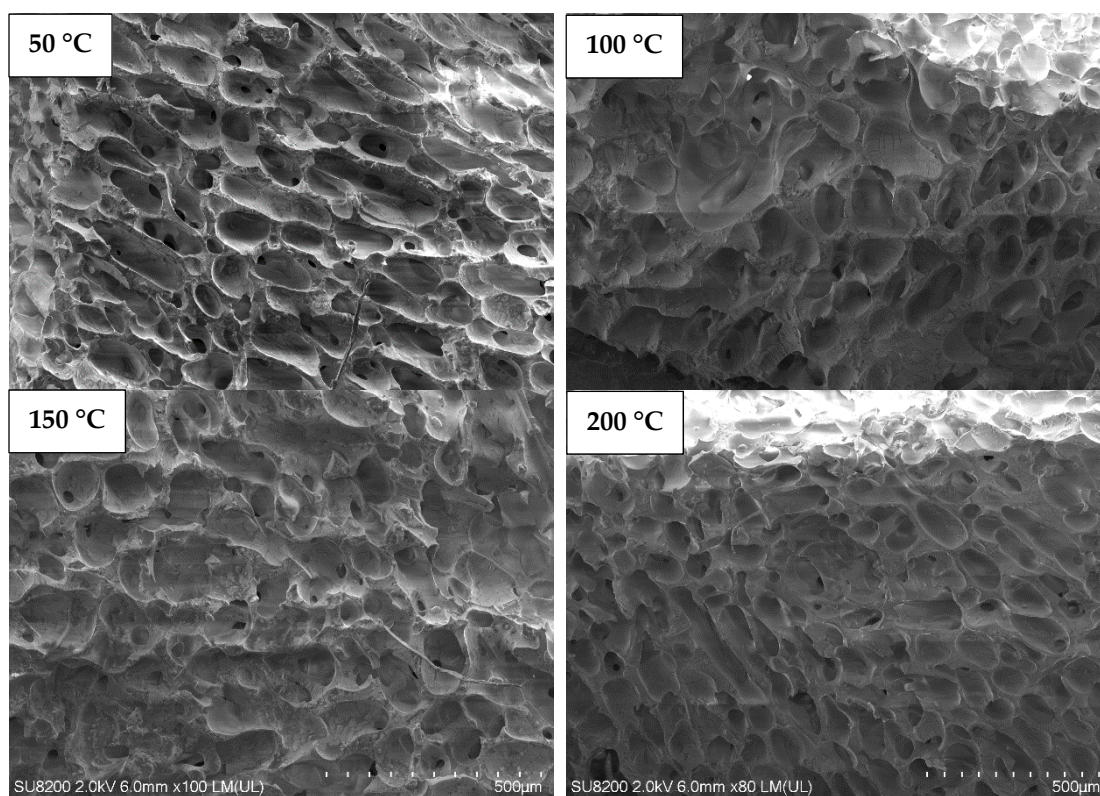


Figure S1. Nitrogen adsorption-desorption isotherms of different cryogels (A: C-63p2; B: C-65p2; C: C-67p2; D: C-63p4).

## 2. SEM Observation of Cryogels after Heating Treatment at Different Temperatures

The cryogels were kept at different temperatures (25, 50, 100, 150 and 200 °C) in a vacuum oven for 3 h. The inner morphology was observed under SEM. As suggested by Figure S2 (50, 100 and 150 °C), the inner morphology of cryogels treated at lower temperatures hardly changed. However, as shown in Figure S2 (200 °C), C-63p4 cryogel after thermal treatment at 200 °C for 3 h, the less open pores are observed.



**Figure 2.** Morphology of hydrophobic cryogels fabricated at 4 °C after temperature treatment.

### 3. SEM Observation of Cryogels after Heating Treatment at Different Temperatures

A video for the cryogel to absorb toluene containing Sudan Red was recorded. It shows that the cryogel absorb toluene very quickly and saturated swelling reaches within 15 s.