

Electronic Supplementary Information (ESI)
for

**Organic-inorganic hybrid materials starting from the novel
nanoscaled bismuth oxido methacrylate cluster
[Bi₃₈O₄₅(OMc)₂₄(DMSO)₉]·2 DMSO·7 H₂O**

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Experimental

The effective bismuth contents of the polymer composites were determined by thermogravimetric measurements. Radiopacities were measured with a Sirona Heliodent Plus operating at 70 kV. Pellets from the composites with diameters of 13mm were prepared and placed next to an aluminium stepwedge on a Kodak ultra-speed super poly-soft X-ray film. The developed film was scanned with a photo densimeter Shamrock RT 115 and the radiopacities of the specimens were measured relative to that of the aluminium stepwedge. Radiopacities are expressed in mm of aluminium.

Synthesis of Bi(OMc)₃: To an ice cooled suspension of Bi(O^tBu)₃ (3.4 g, 30.25 mmol) in 100 mL of diethyl ether a solution of methacrylic acid (7.8 g, 90.75 mmol) in 20 mL diethyl ether was added. The reaction mixture was stirred over night and the solid was filtered off. The crude product was dried in vacuo to give a white solid (3.1 g, 22 %).

Decomp. 180–190 °C. IR (ATR) ν/cm^{-1} : 3103w, 2966w, 2931w, 1639m, 1515s, 1454m, 1378s, 1226s, 1009m, 945s, 866s, 829s, 661m, 621s, 551m. ¹H NMR (500 MHz, d⁶-DMSO) δ 1.81 (s, 3 H, CH₃), 5.49 (s, 1H, CH^AH^B), 5.90 (s, 1H, CH^AH^B). ¹³C{¹H} NMR (126 MHz, d⁶-DMSO) δ 31.26 (CH₃), 123.96 (CH₂), 140.48 (C(CH₃)CH₂), 172.95 (CO₂). Anal. calcd. for C₁₁H₁₃BiO₇ (466.20) C, 31.05; H, 3.26. Found: C, 30.52; H, 3.17.

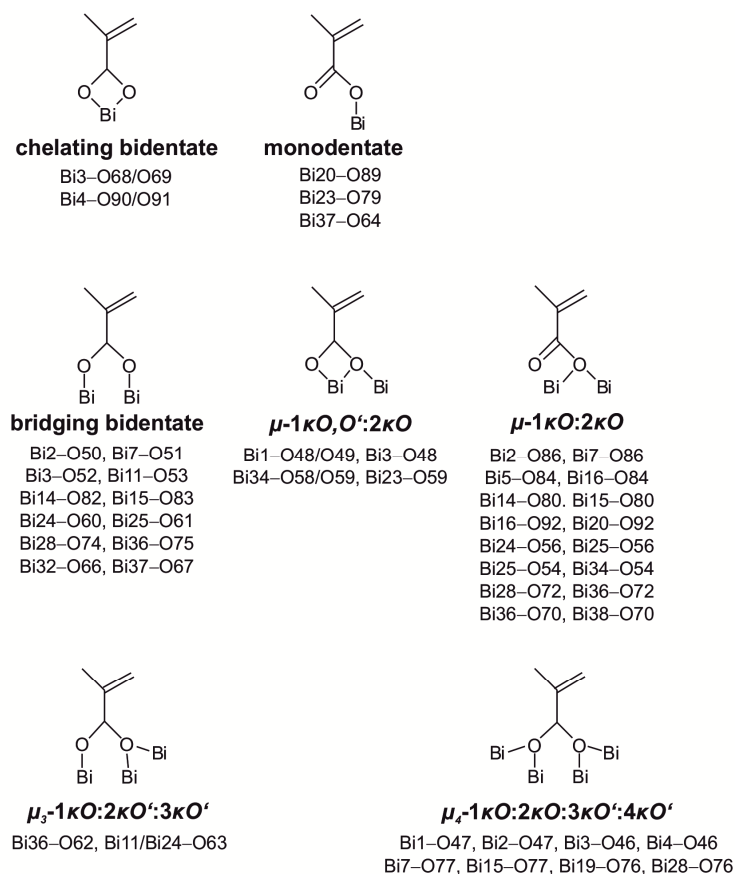


Fig. S1 Coordination modes of the methacrylate ions to the bismuth oxido core in $[\text{Bi}_{38}\text{O}_{45}(\text{OMc})_{24}(\text{DMSO})_9] \cdot 2 \text{ DMSO} \cdot 7 \text{ H}_2\text{O}$ (**1**).