## Supporting Information

## Seawater-Driven Magnesium based Janus Micromotors for Environmental Remediation

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## Supporting videos description

SI Video 1. Seawater-driven magnetically-guided Mg-based micromotor.

**SI Video 2.** Control experiments using Mg, Mg/Ti, Mg/Ti/Ag and Mg/Ti/Au microparticles in sea water.

**SI Video 3.** Anion effect upon the movement of Mg/Ti/Au micromotors using pure water, 0.5 M NaNO<sub>3</sub> solution, 0.5 M Na<sub>2</sub>SO<sub>4</sub> solution and 0.5 M NaCl solutions.

**SI Video 4.** Dependence of the autonomous motion performance of the new Mg-based Janus micromotors upon the chloride ion concentrations in the aqueous media.

**SI Video 5.** A seawater driven alkanethiol-modified Mg micromotor approaches, captures and transports the oil droplet in seawater.

SI Video 6. The interaction of micromotors without the hydrophobic coating and the oil droplet.