Supporting Information

Adjustable Oil Adhesion on Superamphiphobic Copper Surfaces for Controlled Oil Droplet Transport

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Table S1. Superoleophobicity and applications of superamphiphobic copper and other metal surfaces in the past five years.

Materials	**Modifier**	**Fabrication Methods**	**Repelled Liquids γ (mN m^{-1})**	**Application**	**Ref.**
Cu	PTFE/PP	Dip Coating, Water Transfer Printing	Glycol (47.7)	Self-cleaning	[1]
Al Sheets and Pipes	FAS	Sol-gel; Spray Coating	Hexadecane (γ=27.4) Crude oil	Anti-waxing mechanism; Crude oil transportation (anti-crude oil)	[2]
Al alloys	PFDTES	One-step etching	Hexadecane (γ=27.4)	Anti-corrosion	[3]
Cu	PFOA	Compression molding; Simple oxidation	30% ethanol (**γ=33.5**)	Anti-corrosion	[4]
Cu	PFDT	Oxidation; Displacement reaction; Modification	30% ethanol (**γ=33.5**)	Anti-corrosion	[5]
Cu	FTS	Plasma activation	Diiodomethane (**γ=70.21**)	Anti-corrosion	[6]
Ni/Cu	PFOTS	Electrochemical-deposited	Glycol (47.7)	Anti-corrosion	[7]
Cu	PFDT	Laser marking Oxidation; Displacement reaction; Modification	Hexadecane (γ=27.4) Crude oil	Anti-corrosion； Adjustable oil adhesion； Controlled transportation of oil droplets	In this article

Table S2. Laser Marking Parameter Setting.

Square groove（mm）	**Incremental（mm）**	**Array**	**Marking times**
0.01*0.01	0.01	750	10
0.02*0.02	0.01	500	10
0.03*0.03	0.01	375	10
0.04*0.04	0.01	300	10
0.05*0.05	0.01	250	10
0.06*0.06	0.01	215	10
0.07*0.07	0.01	188	10
0.08*0.08	0.01	167	10
0.09*0.09	0.01	150	10
0.1*0.1	0.01	137	10

	Water	Ethanediol	Glycerol	Sunflower oil
F-CuO	146±0.5°	141.3±0.7°	141.5±0.5°	124.6±0.9°
F-CuO/Ag	149.7±0.6°	145.7±2.7°	143.6±0.5°	140.8±0.7°
F-CuO/Ag -0.01	152.8±0.8°	154.8±1.3°	150.8±0.8°	145.8±0.8°
F-CuO/Ag -0.02	154.6±1.2°	152.7±1.6°	152.7±0.6°	150.9±0.7°
F-CuO/Ag -0.03	152.6±1.1°	150.2±0.2°	151.3±0.6°	151.3±0.3°
F-CuO/Ag -0.04	154.8±2.8°	152±1.3°	150.5±0.2°	148.9±1.5°
F-CuO/Ag -0.05	152.9±0.9°	151.0±0.8°	152.2±0.9°	150.5±0.5°
F-CuO/Ag -0.06	153.5±1.3°	154.6±2.6°	153.3±0.8°	150.8±0.6°
F-CuO/Ag -0.07	151±1°	151.2±0.4°	150.3±2.1°	142.2±0.4°
F-CuO/Ag -0.08	151.1±0.4°	152.3±2.5°	149.3±1.5°	147.2±3.2°
F-CuO/Ag -0.09	150.3±0.4°	151.5±1.2°	151.2±1.3°	142.1±0.6°
F-CuO/Ag -0.10	151.2±1.1°	149.9±0.7°	149.7±2.2°	144.8±1°

Figure S1. Optical photographs of the contact angles of F-CuO, F-CuO/Ag and F-CuO/Ag-0.01~0.1 on water, ethylene glycol, glycerol and colza oil.

Movie S1-S4 Self-cleaning and anti-fouling

Movie S1. Self-cleaning methylene blue powder

Movie S2. Self-cleaning carbon black powder

Movie S3. Methylene blue stain for water

Movie S4. Crude oil antifouling

Movie S5-S7 Controlled oil droplet transportation

Movie S5. Controlled Transportation of Glycerol

Movie S6. Controlled transportation of colza oil

Movie S7. Controlled transportation of n-Hexadecane

Movie S8. Controlled transportation of Crude oil

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