Electronic Supplementary Information

Droplet evaporation characteristics on transparent heaters with different wettabilities

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Fig. S1. Cross-sectional FE-SEM image of the Ni mesh structure on glass.



Fig. S2. Complete evaporation times of water droplets on the surfaces of Ni mesh-based transparent heaters with different wetting properties at room temperature.

with hydrophilic surface, at 30 °C

GERI	CISS 0 s	GERI	CIS 300 s	GERI	CIS 510 s
CISS	SEN CISS	CISS	GERI CISS	CISS	GERI CISS
GERI	CISS GERI	GERI	CISS GERI	GERI	CISS GERI
CISS	GERI CISS	CISS	GERPCISS	CISS	GERI CISS

w/o surfac	w/o surface treatment, at 30 °C								
CISS GERI	0 s	CISS GERI	300 s	CISS GERI	600 s	CISS GERI	<mark>870 s</mark>		
SERI (SS	GERI	SERI (15	GERI	SERI CISS	GERI	GERI CISS	GERI		
CISS GERI	CISS	CISS GERI	CISS	CISS GER	CISS	CISS GERI	CISS		
GERI CISS	GERI	GERI CISS	GERI	GERI CISS	roplet	GERI CISS	GERI		

with h	with hydrophobic surface, at 30 °C								
CISS	GERI 0 s	CISS	GE 300 s	CISS	GE 600 s	CISS	GE 900 s	CISS	Gi 1010 s
GERI	CISS GERI	GERI	CISS GERI	GERI	CISS GERI	GERI	CISS GERI	GERI	CISS GERI
CISS	CISS	CISS	Ciss	CISS	CARI CISS	CISS	GERI CISS	CISS	GERI CISS
GERI	CISS GERI	GERI	CISS GERI	GERI	CISS GERI	GERI	CISS GERI	GERI	CISS GERI
2217	OFDI CICC	2217	CEDI CICO	2217	CEDI CICO	2217	CEDI CICO	2212	CEDI CICO

Fig. S3. Evaporation process of water droplets on the surfaces of the Ni mesh-based transparent

heaters with different wetting properties at 30 °C.

with hydrophilic surfa	ce, at 45 °C		
S GERICISE 0 s	S GERICI 150 s	S GERICI 225 s	
RI CISS GERI CI	RI CISS GERI CI	RI CISS GERI CI	
S GERCIS; G	S GERICISS G	S GERI CISS G	
	RI CISS GERI CI	RI CISS GERI CI	
CEDI CICC CI	Droplet DI CICC	CEDI CICC CI	
w/o surface treatmen	t, at 45 °C		
	0550 our 150 s	05 DL OL 300 S	
GERICISS	5 GERI CISE	GERICIE	
I CISS 🛃 CI		I CISS GERI CI	
GERICISS GE	S GERI CISS GE	GERICISS GE	
I CISS GERI CI	I CISS GERI CI	I CISS GERI CI	
with hydrophobic surf	ace, at 45 °C		
0.0	150 0	200 0	204 0
CISS GERI CHOS	CISS GER. D. S	CISS GER. 500 S	CISS GER. 304 S
GERI CISS GERI	GERI CISS GERI	GERI CISS GERI	GERI CISS GERI
CISS GRICISS	CISS GRRICISS	CISS GRICISS	CISS GERI CISS
GERI CISS GERI	GERI CISS GERI	GERI CISSDroplety	GERI CISS GEP
OLIN VIOU OLIN	OLIN VIOU OLIV	OLIT OIDO OLI	OLIN VIOU OLI

Fig. S4 Evaporation process of water droplets on the surfaces of the Ni mesh-based transparent

heaters with different wetting properties at 45 °C.

with hydrophilic surface, at 65 °C

5	GERI CIST		S GERICE 60	5	GERIC 121 s
15	CISS CER	CI	I CISS CEN		CISS GERI UN
S	GER COS	GE	S GER CUSS	GE S	GERI CISS GE
21	CISS GERI	CI	RI CISS GERI	CI	CISS GERI CI
S	GERI CISS	G	Droplet S GERI CISS	G	GERICISS G

w/o surface treatment, at 65 °C

15	CISS GEF 0	s	R	CISS GE 60	S	RI	CISS G 120 s	21	CISS G 140	s
S	GEP CISS	G	S	GER CISS	G	S	GERI CISS GE	S	GERI CISS	GE
IS	CISS GERI	CI	SI	CIS. JERI	CI	15	CISS GERI CI	IS	CISS GERI	CI
S	GERI CISS	G	S	GERI CISS	G	S	GERI CISS ^{le} G	S	GERI CISS	GE

with hydrophobic surface, at 65 °C

GERI CISS	(0s	GERI CISS	60 s	GERI CISS	120 s	SERI CISS 180 s	GERI CISS	238 s
CISS CRI	CISS	CISS CRI	CISS	CISS CRI	CISS	CISS GERI CISS	CISS GERI	CISS
GERI CISS	GERI	GERI CISS	GERI	GERI CISS	GERI	GERI CISS GERI	GERI CISS	GERI
CISS GERI	CISS	CISS GERI	CISS	CISS GERI	CISS	CISS GERI CISS	CISS GERI	CISS
SIDO OLIN	0.00	SIOU OLIN	0.00	SIDO OLITI	0100	SIGO OLIGI CICO	SIDO OLIN	0100

Fig. S5 Evaporation process of water droplets on the surfaces of the Ni mesh-based transparent

heaters with different wetting properties at 65 °C.

with	hydro	philic	surface.	at 95	°C
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CISS GERICOs	CISS GERI 30 s	CISS GERI 62 s	
GERI CISS GERI	GERI CIOS GERI	GERI CISS GERI	
CISS FCISS	CISS EPCISS	CISS GERI CISS	
GERI CISS GERI	GERI CISS GERI	GERI CISS GERI	
CICC OEDI CICC			
w/o surface treatmen	t. at 95 °C		
INI CIDO DEI	NI 0100 00 20 c		
SS GERI CISS OL	SS GERI CIUS OF	SS GERI CISS GE	SS GERI CISS GE
RI CI	RI CI CI GERI CI	RICISS GERICI	RI CISS GERI CI
SS GERI CISS GE	SS GERI CISS GE	SS GERI CISS GE	SS GERI CISS GE
RI CISS GERI CI	RI CISS GERI CI	RI CISS GERI CI	RI CISS GERI CI
with hydrophobic sur	f <mark>ace</mark> , at 95 °C		
OERICICS COS	SERICIOS 30 s	GERICICS 60 s	BERI CICS 88 s
CISS GERI CISS	CISS GERI CISS	CISS GERI CISS	CISS GERI CISS
GERI ()S GERI	GERI (S GERI	GERI (CS GERI	GERI CISS GERI
CISS GERI CISS	CISS GERI CISS	CISS GERI CISS	CISS GERI CISS
GERI CISS GERI	GERI CISS GERI	GERI CISS GERI	GERI CISS GERI

Fig. S6 Evaporation process of water droplets on the surfaces of the Ni mesh-based transparent

heaters with different wetting properties at 95 °C.

Table S1. Total times for the complete water droplet evaporation on Si substrates with different wetting properties and heating temperatures.

Temperature	w/o surface treatment (CA < 10°)	Hydrophilic treatment (CA = 76°)	Hydrophobic treatment (CA = 107°)
Room Temperature	1,487 s	1,267 s	1,947 s
45 °C	286 s	223 s	368 s
80 °C	110 s	91 s	163 s