

Supplementary material

Table S1 Separation coefficients of impurities at different temperature

Element	450 °C	500 °C	550 °C	600 °C	650 °C
Na	3.22	2.60	2.17	1.88	1.66
Fe	2.08×10^{-16}	3.67×10^{-15}	4.61×10^{-14}	4.36×10^{-13}	3.26×10^{-12}
Cu	9.65×10^{-13}	9.39×10^{-12}	7.02×10^{-11}	4.22×10^{-10}	2.11×10^{-9}
Se	6.79×10^1	5.04×10^1	3.94×10^1	3.21×10^1	2.72×10^1
Ni	2.75×10^{-18}	7.03×10^{-17}	1.23×10^{-15}	1.57×10^{-14}	1.53×10^{-13}
Mg	—	—	—	—	0.08
Bi	1.66×10^{-5}	3.44×10^{-5}	6.62×10^{-5}	1.19×10^{-4}	2.04×10^{-4}
Pb	1.54×10^{-5}	3.08×10^{-5}	5.73×10^{-5}	1.01×10^{-4}	1.68×10^{-4}
As	8.56×10^1	8.08×10^1	7.80×10^1	7.68×10^1	—
S	2.24×10^3	1.15×10^3	6.40×10^2	3.79×10^2	—
Cr	5.87×10^{-18}	1.01×10^{-16}	1.24×10^{-15}	1.16×10^{-14}	8.56×10^{-14}
Zn	1.58	1.50	1.46	1.43	1.43
Cd	2.32×10^1	1.87×10^1	1.57×10^1	1.36×10^1	1.21×10^1
Sn	3.36×10^{-13}	2.17×10^{-12}	1.14×10^{-11}	4.99×10^{-11}	1.89×10^{-10}
Si	5.20×10^{-20}	1.70×10^{-18}	3.67×10^{-17}	5.67×10^{-16}	6.58×10^{-15}
Mn	4.44×10^{-8}	2.23×10^{-7}	9.31×10^{-7}	3.32×10^{-6}	1.04×10^{-5}

Table S2 Purity of tellurium at different condensate temperature

Location	175 °C	200 °C	225 °C	250 °C	275 °C	300 °C	%
<i>X/L</i> =0.10	99.9980	99.9981	99.9966	99.9994	99.9964	99.9986	
<i>X/L</i> =0.25	99.9989	99.9985	99.9988	99.9998	99.9990	99.9992	
<i>X/L</i> =0.45	99.9991	99.9996	99.9992	99.9998	99.9992	99.9990	
<i>X/L</i> =0.60	99.9997	99.9994	99.9992	99.9998	99.9992	99.9996	
<i>X/L</i> =0.75	99.9997	99.9997	99.9995	99.9998	99.9991	99.9998	
<i>X/L</i> =0.90	99.9995	99.9998	99.9998	99.9998	99.9996	99.9998	

Table S3 Purity of tellurium at different holding time

Location	180 min	210 min	240 min	270 min	300 min	330 min	360 min	%
<i>X/L</i> =0.10	99.9961	99.9982	99.992	99.998	99.9994	99.9981	99.9968	
<i>X/L</i> =0.25	99.9992	99.9992	99.9989	99.9994	99.9998	99.9993	99.9984	
<i>X/L</i> =0.45	99.9996	99.9995	99.9992	99.9995	99.9998	99.9997	99.9998	
<i>X/L</i> =0.60	99.9997	99.9998	99.9997	99.9998	99.9998	99.9998	99.9999	
<i>X/L</i> =0.75	99.9998	99.9998	99.9998	99.9999	99.9998	99.9999	99.9999	
<i>X/L</i> =0.90	99.9998	99.9999	99.9998	99.9999	99.9998	99.9999	99.9999	

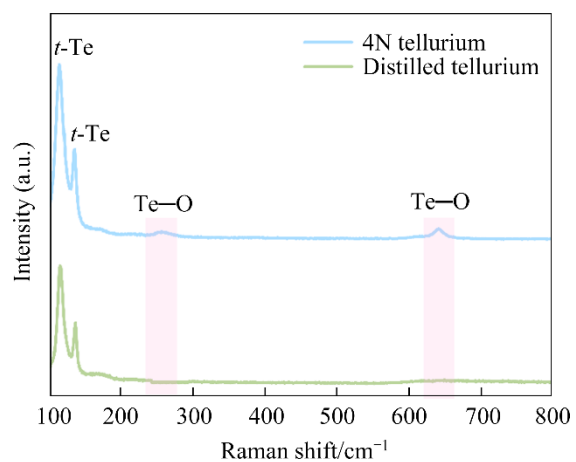


Figure S1 Raman spectra of 4N tellurium and distilled tellurium

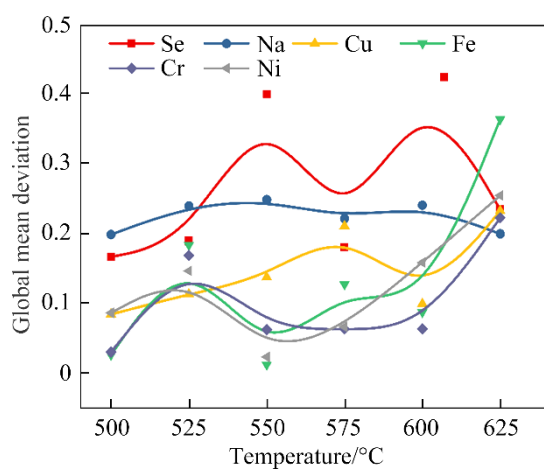


Figure S2 The global average deviation of each impurity at different distillation temperatures