



# OmniPure

## Sub-Boiling Distillation System

The OmniPure allows on-demand production of high purity inorganic acids (e.g. HNO<sub>3</sub>, HCl, HF) from less expensive reagent grade materials. Cost savings can be significant compared with purchase of commercial high purity acids.

The OmniPure is a fully automated unit with all wetted parts composed of inert, high-purity PFA and FEP. The distillation assembly consists of a directly heated distillation container and an air-cooled condensation bottle. No external cooling system is required.

### Experimental

Elements were spiked at 10µg/L in the original reagent grade HNO<sub>3</sub>. Heat was applied at 100°C for 12 hours and distillate collected in a clean PFA bottle. The spiked acid and distillate were then analyzed by ICP-MS.

Throughput: 70% HNO<sub>3</sub>, 12 hrs

Temp (°C)	Volume (mL)
60	160
70	210
80	250
90	315
100	375

Concentrations for many elements are below the detection limit. Note that the distillation was performed under non-cleanroom conditions.

### Reagent Grade HNO<sub>3</sub>

Element	Spike Concentration (µg/L)	After 100°C Distillation (µg/L)
Be	11.0	ND
Mg	11.1	0.06
Al	10.6	0.2
Ti	10.1	0.4
V	10.4	ND
Cr	12.5	ND
Mn	9.7	0.4
Co	9.4	0.01
Ni	10.1	ND
Cu	9.7	0.02
Zn	10.0	0.08
As	10.4	ND
Se	9.7	ND
Sr	9.3	ND
Mo	9.2	ND
Ag	9.4	0.007
Cd	9.3	ND
Sn	10.8	0.5
Sb	9.7	ND
Ba	9.5	0.01
Dy	9.3	ND
Tl	9.4	ND
Pb	9.5	0.004
U	9.4	ND

ND = Not detected

