Supporting information for the MS entitled

'Development of membraneless vaporization device coupled with a flow system for trace analysis of arsenic'

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Supplementary materials

Table S1 Program for SIA operation

Figure S2 Schematic of the "jam jar" gas diffusion apparatus.

Figure S3 Design made with the program Rhinoceros to create the *.stl file used by the FormLabs 3D printer. A) upper view, B) Perspective, C) Lateral view, and D) Frontal view.

Figure S4 Calibration curves obtained from standard As(III) or As(V) (with prior reduction step) using the MVP-flow analysis method.

Table S1 Program for SIA operation

```
'fill water'
S1.SYRINGE_VALVE "IN"
S1.ASPIRATE: 1000 uL | Speed: 100 uL/s
DELAY 1 s

S1.SYRINGE_VALVE "OUT"
'donor 1'
V1.VALVE PORT: 1
DELAY 2 s
S1.ASPIRATE: 1300 uL | Speed: 100 uL/s
DELAY 3 s
V1.VALVE PORT: 5
DELAY 2 s
S1.ASPIRATE: 50 uL | Speed: 30 uL/s
DELAY 3 s
V1.VALVE PORT: 7
DELAY 2 s
S1.ASPIRATE: 225 uL | Speed: 30 uL/s
DELAY 3 s
V1.VALVE PORT: 6
DELAY 2 s
S1.ASPIRATE: 200 uL | Speed: 30 uL/s
DELAY 3 s
V1.VALVE PORT: 7
DELAY 2 s
S1.ASPIRATE: 225 uL | Speed: 30 uL/s
DELAY 3 s
ALARM
DELAY 5 s
V1.VALVE PORT: 6
DELAY 2 s
S1.ASPIRATE: 200 uL | Speed: 30 uL/s
DELAY 3 s
V1.VALVE PORT: 5
DELAY 2 s
S1.ASPIRATE: 50 uL | Speed: 30 uL/s
DELAY 3 s
V1.VALVE PORT: 3
DELAY 2 s
S1.DISPENSE: 2250 uL | Speed: 30 uL/s
DELAY 120 s

ALARM

'suction of donor'
DELAY 25 s

'washing donor 1'
V1.VALVE PORT: 1
DELAY 2 s
S1.ASPIRATE: 1000 uL | Speed: 100 uL/s
DELAY 3 s
V1.VALVE PORT: 4
DELAY 2 s
S1.ASPIRATE: 1000 uL | Speed 50 uL/s
DELAY 3 s
ALARM
V1.VALVE PORT: 3
DELAY 2 s
S1.DISPENSE: 2000 uL | Speed: 50 uL/s
DELAY 3 s
ALARM

DELAY 20 s

'washing donor 2'
V1.VALVE PORT: 1
DELAY 2 s
S1.ASPIRATE: 1000 uL | Speed: 100 uL/s
DELAY 3 s
V1.VALVE PORT: 4
DELAY 2 s
S1.ASPIRATE: 1000 uL | Speed 50 uL/s
DELAY 3 s
ALARM
V1.VALVE PORT: 3
DELAY 2 s
S1.DISPENSE: 2000 uL | Speed: 50 uL/s
DELAY 3 s
ALARM
DELAY 40 s

V1.VALVE PORT: 8
S1.POSITION: 000 uL | Speed: 100 uL/s

ALARM
DELAY 1 s
ALARM
```

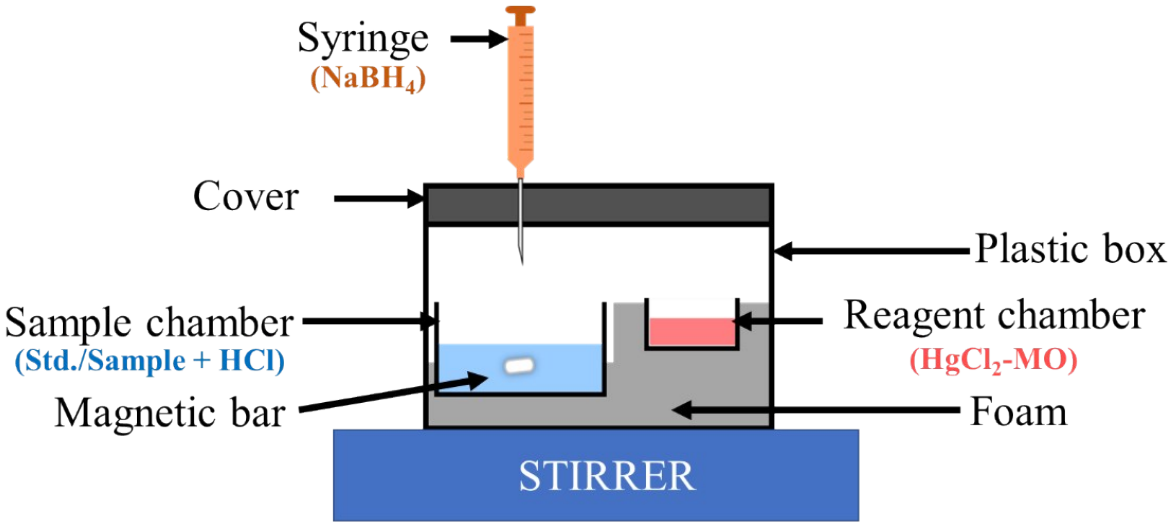
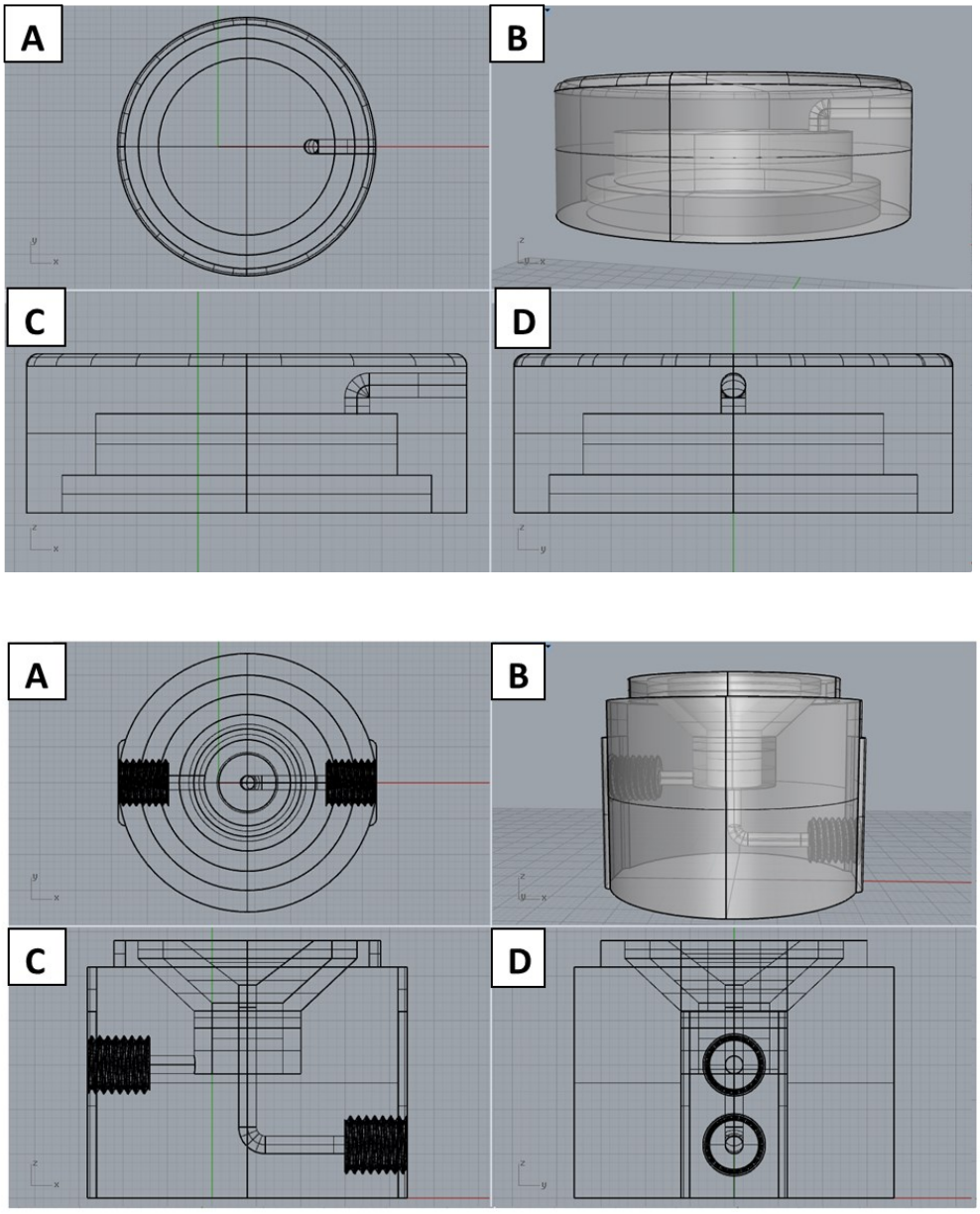


Figure S2. Schematic of the "jam jar" gas diffusion apparatus.



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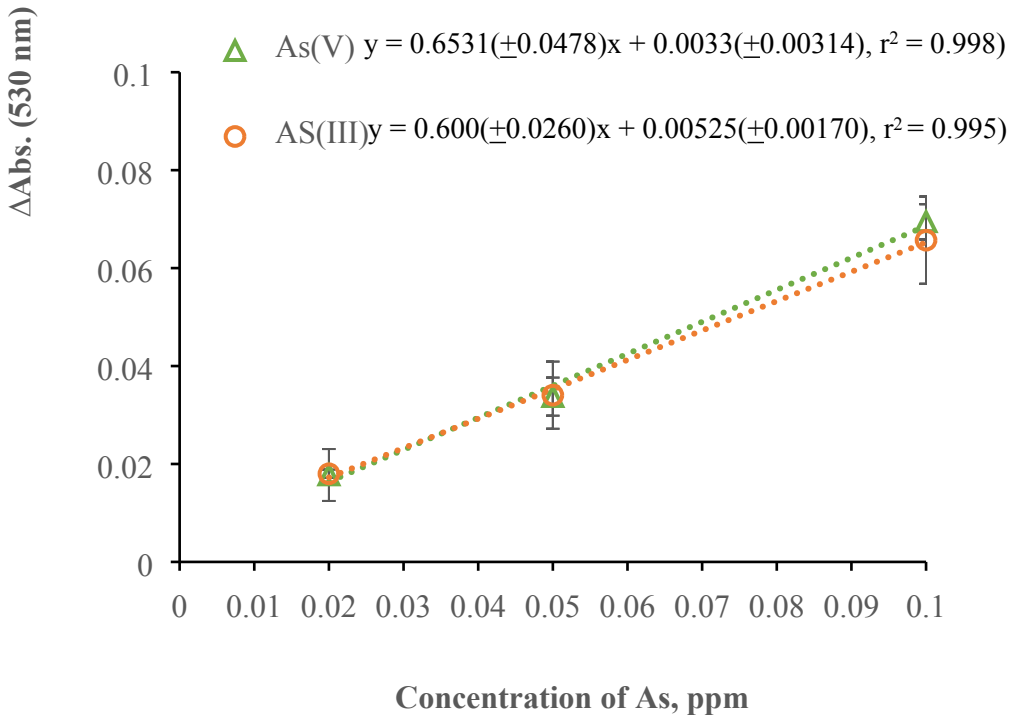

Figure S4 Calibration curves obtained from standard As(III) or As(V) (with prior reduction step) using the MVP-flow analysis method.