

APPENDIX 1 SAMPLE SETTINGS FOR THE ACCELERATOR

Below are some sample settings for 500 KeV $^4\text{He}^+$, 2.00 MeV $^4\text{He}^+$, and 1.50 MeV $^{16}\text{O}^{+2}$. Generally the Einzel lens is at the maximum setting possible without arcing (25 KV), and the steerer magnets are at 374 V, 0 V, 830 V, 0 V.

500 KeV $^4\text{He}^+$

These settings yielded 1 nA on a sample in the MEIS chamber with three shorting bands.

Oven Heat:	64.2%	238°C		
Chamber:		68°C		
Gas #1:	59.2%			
Gas #2:	20.6%			
Probe {Srce}	5.3 KV	5.0 KV	1.90 mA	
Magnet I	4.00 A			
Extract V	6.0 KV			
Source Bias	15.7 KV	14.9 KV		
Focus	2.1 KV	1.9 KV		
Vel Sel	1.272 KV			
Y Steerer	-392			
Einzel Lens	6.1 KV	5.8 KV		

X Quad	6.74 A		
Y Quad	7.02 A		
Switcher Mag	10.35 A		
TermGasStrp	30.0%		
LE IGC	3.3E-06 T		
HE IGC	3.6E-06 T		
FC LE	OUT		
Charging PS	12.8		
TRV/GVM	0.243 MV	0.243 MV	
TPS Mode C/R	GVM	GVM	
Probe [Term]	64.5%	64.4%	
Probe [Term]	8.7 μ A		
Bias Current	23 μ A		
Grid	18.2 V		
Control Gain	50.1%		
CPO Gain	50.0%		
Chain & charging PS		15.8 μ A	
ColmCurLe,HE	1.5 μ A	0.0 μ A	

2.009 MeV $^4\text{He}^+$

These settings yield 3.8 nA on a sample in the MEIS chamber with one shorting band.

Oven Heat	63.7%	235°C	
Chamber		67°C	
Gas #1	59.2%		
Gas #2	20.6%		
Probe {Srce}	5.4 KV	5.1 KV	1.86 mA
Magnet I	4.00 A		
Extract V	5.8 KV		
Source Bias	15.7 KV	14.9 KV	
Focus	1.2 KV	1.1 KV	
Vel Sel	1.279 KV		
Y Steerer	-224		
Einzel Lens	17.8 KV	16.9KV	
X Quad	12.79 A		
Y Quad	10.01A		
Switcher Mag	20.86 A		
TermGasStrp	29.9%		
LE IGC	2.9E-06 T		
HE IGC	4.3E-06 T		
FC LE	OUT		

Charging PS 17.2

TRV/GVM 0.999 MV 0.997 MV

TPS Mode C/R GVM GVM

Probe [Term] 17.5% 17.5%

Probe [Term] 9.5 μ A

Bias Current 10 μ A

Grid 5.6 V

Control Gain 11.3%

CPO Gain 50.0%

Chain & charging PS 21.4 μ A

ColmCurLe,HE 5.2 μ A 0.0 μ A

1.5 MeV $^{16}\text{O}^{+2}$

These settings yield 41 nA on the MEIS midline Faraday cup with two shorting bands.

Oven Heat	66.4%	306°C	
Chamber		96°C	
Gas #1	61.8%		
Gas #2	28.4%		
Probe {Srce}	5.5 KV	5.1 KV	2.07 mA
Magnet I	4.00 A		
Extract V	5.5 KV		
Source Bias	14.3 KV	13.6 KV	
Focus	1.7 KV	1.6 KV	
Vel Sel	0.602 KV		
Y Steerer	-457		
Einzel Lens	15.8 KV	15.0 KV	
X Quad	9.67 A		
Y Quad	10.07A		
Switcher Mag	17.56 A		
TermGasStrp	28.5%		
LE IGC	4.6E-06 T		
HE IGC	3.1E-06 T		
FC LE	OUT		

Charging PS	16.3	
TRV/GVM	0.490 MV	0.486 MV
TPS Mode C/R	GVM	GVM
Probe [Term]	29.6%	29.6%
Probe [Term]	15.6 μ A	
Bias Current	35 μ A	
Grid	2.8 V	
Control Gain	24.7%	
CPO Gain	47.6%	
Chain & charging PS	17.6 μ A	
ColmCurLe,HE	2.9 μ A	0.0 μ A

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