

Cyrogen fill parameters

(04-14-14 JGP)

500 600 700 800 900

Helium

Refill He level	39%	60%	61%	35%	45%
Refill volume	26 L	40 L	250 L	150 L	250 L
Min He level	5%	40%	45%	5%	5%
Lowest observed:	22%	56%		22%	35%
Boiloff %/day	1.3%	0.76%	0.29%	1.57%	1.46%
Hold time:	55 d	47 d	120 d	58 d	
Max fill volume	40 L	56 L	317 L	241 L	
Liters / percent (actual for fill)	0.4	1.08	6.6	2.9	4.55
Boiloff %/day	1.3	0.76	0.29	1.57	1.46

Nitrogen

Boil off rate %/d	5.1	4.75		4.6	
Max fill volume	86 L	135 L	365 L	232 L	
Hold time	17.5 d to 10%	18 d to 15%	> 21 d	18 d to 15%	> 21 d

Assume 86% transfer efficiency for helium transfer from dewar.

250 Lt will fill the following:
 500 from 39% to 100%
 600 from 63% to 100%
 800 from 35% to 95%

250 Lt will fill the 900 from ~45 % to 100%