

$$\frac{AIR}{\sqrt{M}} \rightarrow \sqrt{\frac{300}{30}} = \sqrt{10}$$

$$\frac{He^3}{\sqrt{3}} = \sqrt{\frac{1}{6}}$$

$$S = 12 \frac{d_{cm}^3}{l_{cm}} \text{ l/sec air, room T}$$

$$= \frac{12}{\sqrt{60}} \frac{d_{cm}^3}{l_{cm}} \text{ l/sec He}^3, .5K$$

$$= 1.5 \frac{d_{cm}^3}{l_{cm}} \text{ l/sec} \approx 10^{-2} = 10 \text{ cc/sec}$$

$$d = 1cm, \quad l = 1.5m$$

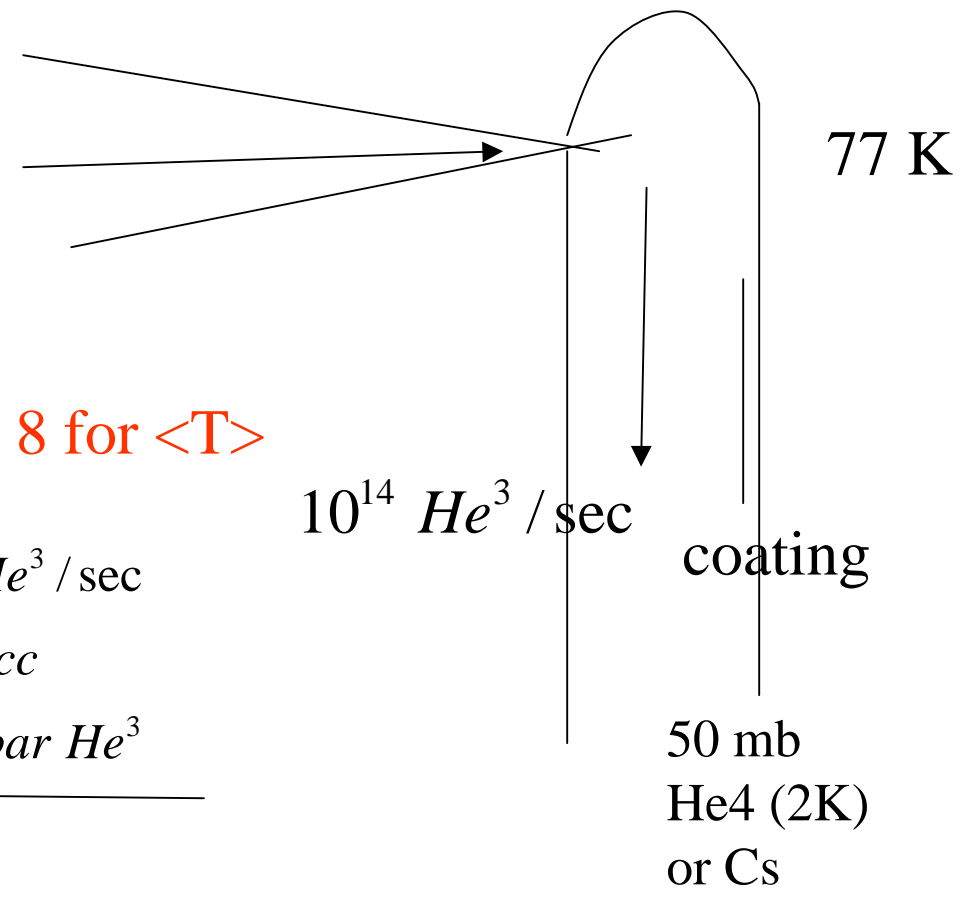
$$N_3 \times 10 = 10^{14} \text{ He}^3 / \text{sec}$$

$$N_3 = 10^{13} \text{ He}^3 / \text{cc}$$

$$\approx 3 \times 10^{-4} \text{ mbar He}^3$$

x 8 for <T>

$$10^{14} \text{ He}^3 / \text{sec}$$

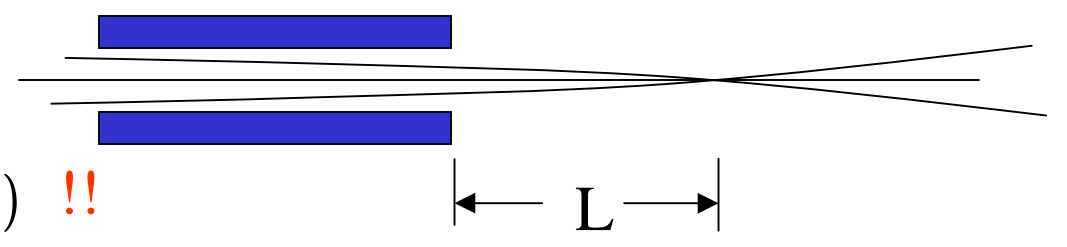


$$S_{orif} = 12 A_{cm^2} \text{ l/sec, } \left(\sqrt{\frac{T}{M}} = \sqrt{10} \right)$$

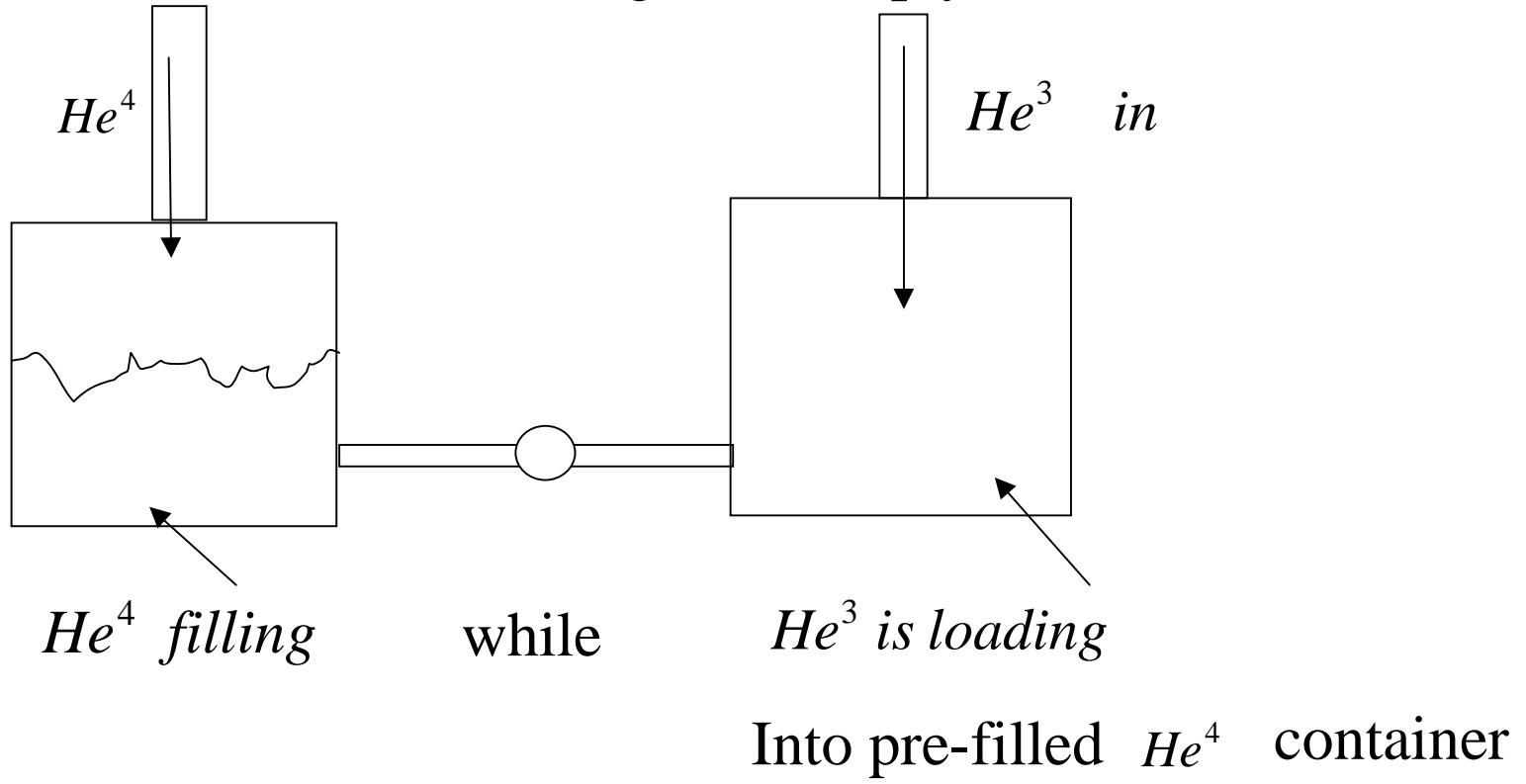
$$= 12 \sqrt{\frac{25}{10}} A_{cm^2} \left(\sqrt{\frac{T}{M}} = \sqrt{\frac{77}{3}} \right)$$

$$\approx 18 A_{cm^2} \approx 18 \times 10^{-2} \text{ l/sec (1mm hole) !!}$$

Hexapole Focussing



Prevent He3 accumulating in an empty chamber



Purifier in separate cryostat

Vertical Hexapole

No wall collisions

Cs

pumping

