

Fusion and Industrial Plasma Technologies

Problem set – 29.4.2025

Plasma Fuelling and Tritium Cycle

Y. Martin – SPC / EPFL

Exercise 1

Set the conversion table for flow rate units: Torr litre / second; Pa m³ / s; part /s;

Exercise 2

How long does a deuterium bottle last for TCV plasma fuelling?

Exercise 3

What is the mass flow rate of the NBH1 system installed on TCV?

Exercise 4

What is the range of D/T ratio in which more than 95% of the maximum fusion power can be produced?

Exercise 5

What is the value T burn-up fraction in ITER? and how large should the T inventory be?