Gas Properties

Table 1: Single Gas Properties

Gas	Symbol	X_0 [m]	Primary ions [cm^{-1}]
Helium	He	5680	5-6
Argon	Ar	118	24
Ethane	C_2H_6	365	44
Propane	C_3H_8	242	72
Butane	C_4H_{10}	182	90
Dimethyl Ether	C_2H_6O	238	66
Carbon Dioxide	CO_2	197	36

Effects of Helium:

- Large radiation length X_0:
  Good for multiple scattering
- Few primary ions:
  bad resolution at small distance
  bad dE/dx resolution
- Large e^- diffusion ($580\mu\text{m}/\sqrt{cm}$):
  bad resolution at large distance