



$N = 55.3 \times 10^6$ excess
electrons.

$$\therefore Q = -Ne$$

Flux through surface S is:

$$\Phi_e = \oint \vec{E} \cdot d\vec{A} = \frac{Q_{in}}{\epsilon_0} = -\frac{Ne}{\epsilon_0}$$

$$\therefore \Phi_e = -1000 \frac{Nm^2}{C}$$