How long does it take a current of 0.5mA to deliver 15C of charge?

Solution.

$$I = 0.5mA = 0.5 \cdot 10^{-3}A, q = 15C;$$

$$t - ?$$

For a steady flow of charge through a surface, the current I can be calculated with the following equation:

$$I = \frac{q}{t},$$

where q is the electric charge transferred through the surface over a time t.

The time can be calculated with the equation:

$$t = \frac{q}{I}.$$

$$t = \frac{15C}{0.5 \cdot 10^{-3}A} = 3 \cdot 10^{4}s.$$

Answer: The time is $t = 3 \cdot 10^{4}s$.