

As sugar is poured into a bowl, the rubbing of sugar grains creates a static electric charge that repels the grains, and causes sugar to fly out in all directions. each of two sugar grains have a charge of $2.0 \times 10^{-11} \text{C}$ at a separation of 5.0×10^{-5} with what force will they repel each other

Solution

They repel each other with Coulomb's force

$$F = \frac{kq^2}{r^2} = 8,99 \cdot 10^9 \text{ N} \cdot \frac{\text{m}^2}{\text{C}^2} * \frac{(2.0 \times 10^{-11} \text{C})^2}{(5.0 \times 10^{-5} \text{m})^2} = 1.44 * 10^{-3} \text{N} = 1.44 \mu\text{N}$$

Answer: 1.44 μN .