How many milliliters of 0.450 M Na2S2O3 solution are needed to titrate 2.445 g of I2 to the equivalence point?

I2(aq) + 2 S2O32-(aq) S4O62-(aq) + 2 I -(aq)

Solution

$n(I_2) = \frac{2.445}{126.9 \cdot 2} = 0.00963 \text{ mol}$

$I_2 : S_2O_3^{2-}$ ratio $1 : 2$

$n(S_2O_3^{2-}) = n(I_2) \cdot 2 = 0.01926 \text{ mol}$

$V_{titr.} = \frac{0.01926 \text{ mol}}{0.45 \text{ mol/L}} = 0.0428\ L$

Answer: 42.8 mL

Answer provided by www.AssignmentExpert.com