Answer on Question #79729, Chemistry / General Chemistry

Question:

How many liters of chlorine gas can react with 52.5 grams of sodium metal at standard temperature and pressure? Show all of the work used to find your answer. 2Na + Cl2 2NaCl (5.04)

Solution:

Equation:

$$2Na + Cl_2 \rightarrow 2NaCl$$

Amount of sodium: $52.5 / 22.99 = 2.284$ mol

Amount of chlorine: $2.284 / 2 = 1.142$ mol

Volume of chlorine: $1.142 \cdot 22.4 = 25.58$ l

Answer:

25.58 liters