

### Answer on Question #47975, Chemistry, Other

**Question:** During the course of world war 1 ,  $6.622 \times 10^{32}$  molecules of a poison gas called phosgene was fired on allied soldiers by german troops. To what mass does this correspond

**Answer:** The number of moles of phosgene is:

$n = N(\text{phosgene})/N_A$ , where  $N_A$  is an Avogadro constant ( $= 6.022 \times 10^{23} \text{ mol}^{-1}$ ), so  $n = 6.622 \times 10^{32} / 6.022 \times 10^{23} = 1.1 \times 10^9 \text{ mol}$ .

The molar mass of phosgene is 98.92 g/mol

So,  $m(\text{phosgene}) = 1.1 \times 10^9 \text{ mole} \times 98.92 \text{ g/mol} = 109 \times 10^9 \text{ g}$ .