10. $3{,}02\ \cancel{\text{mol H}}\ \dfrac{6{,}022 \cdot 10^{23}\ \text{H atomo}}{1\ \cancel{\text{mol H}}} = 18{,}186 \cdot 10^{23}\ \text{H atomo}$

3,02 mol H atomotan $18{,}186 \cdot 10^{23}$ H atomo daude.

$3{,}02\ \cancel{\text{mol H}_2}\ \dfrac{6{,}022 \cdot 10^{23}\ \cancel{\text{H}_2\ \text{molekula}}}{1\ \cancel{\text{mol H}_2}} \cdot \dfrac{2\ \text{H atomo}}{1\ \cancel{\text{H}_2\ \text{molekula}}} = 36{,}372 \cdot 10^{23}\ \text{H atomo}$

3,02 mol H molekulatan $3{,}6372 \cdot 10^{24}$ H atomo daude.

11. $M\ (Se) = 78{,}9\ g \cdot mol^{-1}$

$100\ \cancel{\text{g selenio}}\ \dfrac{1\ \text{mol selenio}}{78{,}9\ \cancel{\text{g selenio}}} = 1{,}267\ \text{mol selenio}$

100 g seleniotan 1,267 mol selenio daude.

12. $3\ \cancel{\text{mol H}_2\text{SO}_4}\ \dfrac{2\ \text{mol H}}{1\ \cancel{\text{mol H}_2\text{SO}_4}} = 6\ \text{mol H}$

$3\ \cancel{\text{mol H}_2\text{SO}_4}\ \dfrac{1\ \text{mol S}}{1\ \cancel{\text{mol H}_2\text{SO}_4}} = 3\ \text{mol S}$

$3\ \cancel{\text{mol H}_2\text{SO}_4}\ \dfrac{4\ \text{mol O}}{1\ \cancel{\text{mol H}_2\text{SO}_4}} = 12\ \text{mol O}$

3 mol azido sulfurikotan 6 mol hidrogeno, 3 mol sufre eta 12 mol oxigeno daude.

13. $M\ (SiO_2) = (28 + 16 \cdot 2)\ g \cdot mol^{-1} = 60\ g \cdot mol^{-1}$

a) $3{,}62\ \cancel{\text{mol SiO}_2}\ \dfrac{60\ \text{g SiO}_2}{1\ \cancel{\text{mol SiO}_2}} = 217{,}2\ \text{g SiO}_2$

b) $3{,}62\ \cancel{\text{mol SiO}_2}\ \dfrac{1\ \text{mol Si}}{1\ \cancel{\text{mol SiO}_2}} = 3{,}62\ \text{mol Si}$

$3{,}62\ \cancel{\text{mol SiO}_2}\ \dfrac{2\ \text{mol O}}{1\ \cancel{\text{mol SiO}_2}} = 7{,}24\ \text{mol O}$

3,62 mol SiO_2-tan 3,62 mol silizio eta 7,24 mol oxigeno daude.

c) $3{,}62\ \cancel{\text{mol SiO}_2}\ \dfrac{1\ \cancel{\text{mol Si}}}{1\ \cancel{\text{mol SiO}_2}} \cdot \dfrac{6{,}022 \cdot 10^{23}\ \text{Si atomo}}{1\ \cancel{\text{mol Si}}} = 2{,}18 \cdot 10^{24}\ \text{Si atomo}$

$3{,}62\ \cancel{\text{mol SiO}_2}\ \dfrac{2\ \cancel{\text{mol O}}}{1\ \cancel{\text{mol SiO}_2}} \cdot \dfrac{6{,}022 \cdot 10^{23}\ \text{O atomo}}{1\ \cancel{\text{mol O}}} = 4{,}36 \cdot 10^{24}\ \text{O atomo}$

3,62 mol SiO_2-tan $2{,}18 \cdot 10^{24}$ silizio atomo eta $4{,}36 \cdot 10^{24}$ oxigeno atomo daude.

14. *a)* $17\ \cancel{\text{g burdina}}\ \dfrac{1\ \cancel{\text{mol burdina atomo}}}{55{,}8\ \cancel{\text{g burdina}}} \cdot \dfrac{6{,}022 \cdot 10^{23}\ \text{burdina atomo}}{1\ \cancel{\text{mol burdina atomo}}} = 1{,}835 \cdot 10^{23}\ \text{burdina atomo}$

b) $21\ \cancel{\text{g banadio}}\ \dfrac{1\ \cancel{\text{mol banadio atomo}}}{50{,}9\ \cancel{\text{g banadio}}} \cdot \dfrac{6{,}022 \cdot 10^{23}\ \text{banadio atomo}}{1\ \cancel{\text{mol banadio atomo}}} = 2{,}485 \cdot 10^{23}\ \text{banadio atomo}$

c) $10\ \text{g}\ \cancel{\text{eztainu}}\ \dfrac{1\ \cancel{\text{mol eztainu atomo}}}{118{,}7\ \text{g}\ \cancel{\text{eztainu}}} \cdot \dfrac{6{,}022 \cdot 10^{23}\ \text{eztainu atomo}}{1\ \cancel{\text{mol eztainu atomo}}} = 5{,}073 \cdot 10^{22}\ \text{eztainu atomo}$

Atomo kopuruari dagokionez: $b > a > c$

15. $1{,}3\ \text{mol}\ H_2\ \dfrac{2\ \text{mol H}}{1\ \text{mol}\ H_2} \cdot \dfrac{6{,}022 \cdot 10^{23}\ \text{H atomo}}{1\ \text{mol H}} = 1{,}6 \cdot 10^{24}\ \text{H atomo}$

$1{,}3\ \text{mol}\ O_3\ \dfrac{3\ \text{mol O}}{1\ \text{mol}\ O_3} \cdot \dfrac{6{,}022 \cdot 10^{23}\ \text{O atomo}}{1\ \text{mol O}} = 2{,}3 \cdot 10^{24}\ \text{O atomo}$

$1{,}3\ \text{mol}\ S_8\ \dfrac{8\ \text{mol S}}{1\ \text{mol}\ S_8} \cdot \dfrac{6{,}022 \cdot 10^{23}\ \text{S atomo}}{1\ \text{mol S}} = 6{,}3 \cdot 10^{24}\ \text{S atomo}$

$1{,}3\ \text{mol}\ P_4\ \dfrac{4\ \text{mol P}}{1\ \text{mol}\ P_4} \cdot \dfrac{6{,}022 \cdot 10^{23}\ \text{P atomo}}{1\ \text{mol P}} = 3{,}1 \cdot 10^{24}\ \text{P atomo}$

16. $M\ (Rb_2O) = (2 \cdot 85{,}5 + 16)\ \text{g·mol}^{-1} = 187\ \text{g·mol}^{-1}$

$M\ (Au_2O_3) = (2 \cdot 197 + 3 \cdot 16)\ \text{g·mol}^{-1} = 442\ \text{g·mol}^{-1}$

$M\ (HNO_2) = (1 + 14 + 2 \cdot 16)\ \text{g·mol}^{-1} = 47\ \text{g·mol}^{-1}$

$M\ (HF) = (1 + 19)\ \text{g·mol}^{-1} = 20\ \text{g·mol}^{-1}$

$28\ \text{mg}\ Rb_2O\ \dfrac{1\ \text{g}}{1\,000\ \text{mg}} \cdot \dfrac{1\ \text{mol}\ Rb_2O}{187\ \text{g}\ Rb_2O} \cdot \dfrac{6{,}022 \cdot 10^{23}\ Rb_2O\ \text{molekula}}{1\ \text{mol}\ Rb_2O} = 9{,}0 \cdot 10^{19}\ Rb_2O\ \text{molekula}$

$28\ \text{mg}\ Au_2O_3\ \dfrac{1\ \text{g}}{1\,000\ \text{mg}} \cdot \dfrac{1\ \text{mol}\ Au_2O_3}{442\ \text{g}\ Au_2O_3} \cdot \dfrac{6{,}022 \cdot 10^{23}\ Au_2O_3\ \text{molekula}}{1\ \text{mol}\ Au_2O_3} = 3{,}8 \cdot 10^{19}\ Au_2O_3\ \text{molekula}$

$28\ \text{mg}\ HNO_2\ \dfrac{1\ \text{g}}{1\,000\ \text{mg}} \cdot \dfrac{1\ \text{mol}\ HNO_2}{47\ \text{g}\ HNO_2} \cdot \dfrac{6{,}022 \cdot 10^{23}\ HNO_2\ \text{molekula}}{1\ \text{mol}\ HNO_2} = 3{,}6 \cdot 10^{20}\ HNO_2\ \text{molekula}$

$28\ \text{mg HF}\ \dfrac{1\ \text{g}}{1\,000\ \text{mg}} \cdot \dfrac{1\ \text{mol HF}}{20\ \text{g HF}} \cdot \dfrac{6{,}022 \cdot 10^{23}\ \text{HF molekula}}{1\ \text{mol HF}} = 8{,}4 \cdot 10^{20}\ \text{HF molekula}$

17. *a)* $3{,}975 \cdot 10^{24}\ P_2O_5\ \text{molekula}\ \dfrac{2\ \text{P atomo}}{1\ P_2O_5\ \text{molekula}} \cdot = 7{,}950 \cdot 10^{24}\ \text{P atomo}$

$3{,}975 \cdot 10^{24}\ P_2O_5\ \text{molekula}\ \dfrac{5\ \text{O atomo}}{1\ P_2O_5\ \text{molekula}} \cdot = 1{,}987 \cdot 10^{25}\ \text{O atomo}$

Guztira, $7{,}950 \cdot 10^{24}$ fosforo atomo eta $1{,}987 \cdot 10^{25}$ oxigeno atomo ditugu.

b) $M\ (P_2O_5) = (2 \cdot 31 + 5 \cdot 16)\ \text{g·mol}^{-1} = 142\ \text{g·mol}^{-1}$

$3{,}975 \cdot 10^{24}\ P_2O_5\ \text{molekula}\ \dfrac{1\ \text{mol}\ P_2O_5}{6{,}022 \cdot 10^{23}\ P_2O_5\ \text{molekula}} \cdot \dfrac{142\ \text{g}\ P_2O_5}{1\ \text{mol}\ P_2O_5} = 937{,}3\ \text{g}\ P_2O_5$

$937{,}3\ \text{g}\ P_2O_5$ ditugu.