Answer to Question #51605, Chemistry, Organic Chemistry

Work out the oxidation state of manganese and chromium in these compounds potassium permanganate and sodium dichromate please show the workings for this.

what is the oxidation state of the polyatomic anions permanganate(VII) and dichromate (VI) please show the workings for this.

Answer:
potassium permanganate – $KMnO_4$
K^{+1} and O^{-2} always, compound electroneutral, so for Mn:

$$1 \quad 4 \times (-2) = \quad +7 = 7$$

Mn^{+7}
For the anion we have:

$$1 = \quad 1$$

MnO_4^{-1}

sodium **dichromate** – $Na_2Cr_2O_7$
Na^{+1} and O^{-2} always, compound electroneutral, so for Cr:

$$\frac{2 \quad 7 \times (-2)}{2} = \frac{+12}{2} = 6$$

Cr^{+6}
For the anion we have:

$$2 = \quad 2$$

$Cr_2O_7^{-2}$