Task #81456

How many moles of water are present per mole of MnCl2?

Solution.

Hydrated $MnCl_2$ is a hydrate of $MnCl_2 * 4H_2O$. Let us write the equation for the reaction of thermal decomposition of the hydrate to form salt and water.

$MnCl_2*4H_2O = MnCl_2 + 4H_2O$

Since we are not told how many grams of hydrate was taken, we apply the standard case of 100 grams of hydrate. The amount of hydrate is equal to the amount of MnCl2.

$N(MnCl_2*4H_2O) = N(MnCl_2)$

$M(MnCl_2*4H_2O) = 198$ g/mole

$N(MnCl_2*4H_2O) = 0.51$ mole

$N(H_2O) = 4* N(MnCl_2*4H_2O)$

$N(H_2O) = 2.04$ mole

Answer:

$N(H_2O) = 2.04$ mole