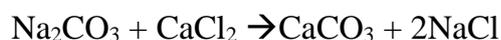


Chalk is a soft, white, porous sedimentary rock, a form of limestone composed of the mineral calcite. Calcite is calcium carbonate or  $\text{CaCO}_3$ .

$\text{CaCO}_3$  can be obtained in result of reaction between sodium carbonate and calcium chloride:



It's easier to find masses of sodium carbonate and calcium chloride by using concept of amount.

The ratio of amounts is  $\text{CaCO}_3 : \text{Na}_2\text{CO}_3 : \text{CaCl}_2 = 1 : 1 : 1$

Amount of  $\text{CaCO}_3$  is :

$n = m/M_w$ , where  $M_w$  is molecular mass,

$$n = 2/100 = 0.02 \text{ mol}$$

Amount of  $\text{CaCO}_3$  is equal to amounts of  $\text{Na}_2\text{CO}_3$  and  $\text{CaCl}_2 = 0.02 \text{ mol}$

The mass is:  $m = n * M_w$ ,

$$M_w \text{ for } \text{Na}_2\text{CO}_3 = 106$$

$$M_w \text{ for } \text{CaCl}_2 = 111$$

$$m \text{ of } \text{Na}_2\text{CO}_3 = 106 * 0.02 = \mathbf{2.12 \text{ g}}$$

$$m \text{ of } \text{CaCl}_2 = 111 * 0.02 = \mathbf{2.22 \text{ g}}$$