

## CALORIMETRY

a calorimeter a device that is used to measure the  $\Delta T$  for a reacting system

- OFTEN a container filled with  $H_2O$   
→ will absorb or release heat

\* Because the heat flowing is absorbed (or released) mostly by the  $H_2O$  and a bit by the calorimeter, measuring  $\Delta T$  for the water allows to calculate  $q$  for the process

SURROUNDINGS : CALORIMETER +  $H_2O$  it holds  
SYSTEM : PUT IN THE WATER

$$\begin{aligned}q_{\text{SYSTEM}} &= -q_{\text{SURROUNDINGS}} \\ &= -(q_{H_2O} + q_{\text{CAL}}) \\ &= -(mS\Delta T + C\Delta T)\end{aligned}$$

↑ heat capacity

$$\Delta H_{\text{SYS}} = \frac{q_{\text{SYS}}}{n_{\text{SYS}}}$$

$H_2O$  in cup = surroundings

if  $T_{H_2O} \uparrow \Rightarrow q_{\text{SURR}}$  is (+)  $\Rightarrow q_{\text{SYS}}$  is (-)

if  $T_{H_2O} \downarrow \Rightarrow q_{\text{SURR}}$  is (-)  $\Rightarrow q_{\text{SYS}}$  is (+)

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