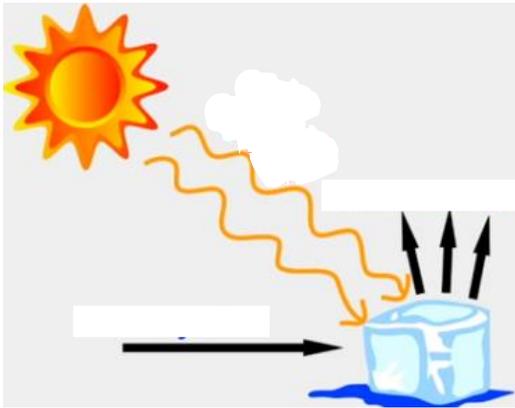


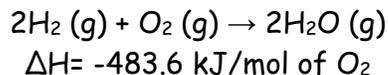
VN 7.2 Endothermic VS. Exothermic Processes

System versus surroundings

The _____ is the part of the universe we wish to focus our attention on. In the world of chemistry, the system is the _____. The _____ are everything else; the rest of the universe.



In chemistry most of the time a chemical reaction is the part of the universe we are focusing our attention on and is therefore the system everything outside of the reaction is the surroundings.



If $\Delta H =$ _____ then the energy is released from the system into the surroundings.

If $\Delta H =$ _____ then energy is absorbed from the surroundings into the system.

What is an endothermic process?

An endothermic process is a process in which the system _____ thermal energy from its surroundings. Typically endothermic processes feel _____ since they are as they are _____ thermal energy from their surroundings.

Graph:

_____ is an example of an endothermic process. In order to melt, the ice cube below must absorb _____ from its surroundings.

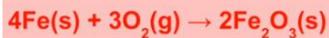


What is an exothermic process?

An exothermic process is a process in which the system _____ thermal energy into its surroundings. Typically exothermic processes feel _____ since they are _____ thermal energy into their surroundings.

Graph:

The most commonly available hand warmers make use of the _____ of iron to achieve an exothermic reaction.



$$\Delta H = -1644 \text{ KJ}$$

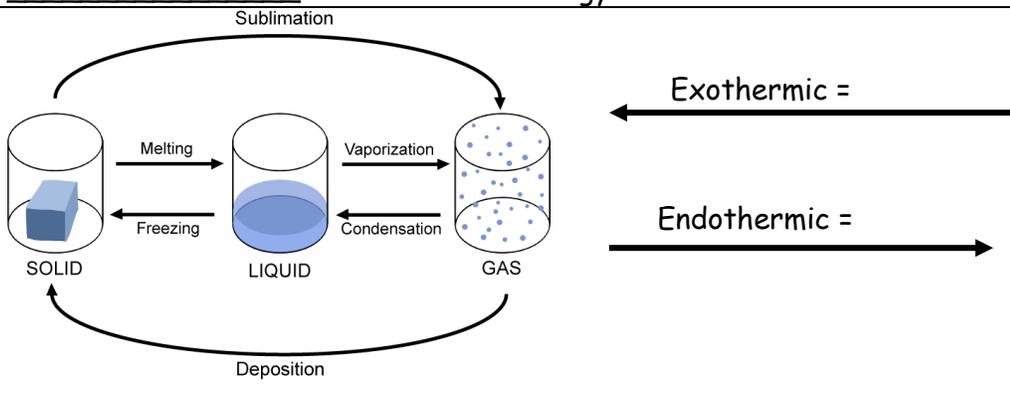


Example: changes in state of matter

Whenever there is a change in state of matter there is also a certain amount of _____ energy that is either released or absorbed by the _____.

In an _____ process the particles in a gas release energy into the surroundings and the substance eventually _____ and freezes as the substance _____ more and more energy.

In an _____ process the particles in a solid absorb energy from the surroundings and the substance eventually _____ and vaporizes as a substance _____ more and more energy.



TRY YOUR OWN

Determine if the following examples are exothermic or endothermic.	
Example	Endothermic or Exothermic
formation of snow in clouds	
a candle flame	
cooking an egg	
making ice cubes	
melting solid salts	
conversion of frost to vapor	
burning sugar	
baking bread	