

Thermochemical Reactions

Unit 2: Thermochemistry Assignment 1

Your task is to create an infographic/poster for a thermochemical reaction of your choosing. Let's decorate the classroom with some thermochem charm. Here is what is required for this assignment...

Step 1: Pick an awesome chemical reaction that is either exothermic or endothermic. *Make sure you pick something that interests you!* Here are some processes that involve chemical changes to get you started.

Concrete curing
Making coffee/tea/chocolate
Combustion of rocket fuel
Tesla (electric car) battery
Lithium ion batteries
Hydrogen fuel cell
Baking (cookies, cake)

Hydrolysis
DNA replication
Neutralization reactions
Production of hydrogen

Stick with chemical reactions (no nuclear fission fusion for this assignment).

If you're really daring you can choose a chemical process that actually consists of more than one reaction.

Step 2: Do some research! Find out some basic info such as compounds involved, the energy released or absorbed, applications of the reaction (where it is used), environmental implications, and anything else you might find interesting that will contribute to your poster. Record all sources so you can include them on your poster.

Step 3: Create a infographic/poster. Include all the info below on a sheet of regular 8.5x11 paper (or larger). It can be created by hand or digitally (Word, Publisher, Powerpoint, various Infographic web apps). Make it pretty! We'll be hanging them up in the classroom

On the poster make sure to include:

1. Title, name
2. Description:
 - a. uses for the reaction/products
 - b. whether it is endothermic/exothermic and the Molar Enthalpy of Reaction (ΔH)
 - c. any other interesting facts about the products or reactants
 - d. environmental implications of reaction
3. Balanced thermochemical equation(s) including molar enthalpy (ΔH)
4. Images of the reaction happening and any other related images/graphics/charts/stats that you find interesting or you think could contribute to your poster
5. Footnotes and sources used (not too big)
6. Make sure it is not too crowded but contains all the relevant information you wish to share

Name: _____

SCH 4U/P

Date: _____

Marking Scheme:

A. Chemical reaction chosen: [/5 K marks]

- Reaction is a chemical reaction (as opposed to a nuclear or physical reaction)
- Reaction chosen is appropriate for this assignment (interesting but not too complicated)
- Please consult with teacher if you are sure if you are unsure if your equation is appropriate for the assignment

B. Description and information [/10 A marks]

- Included a written description of chemical reaction including endothermic/exothermic and the molar enthalpy
- Included a brief description of uses of the reaction or products. Is this a human-made reaction or does it occur in nature?
- Other relevant images, data, graphics, information included
- Brief description of environmental implications of the reaction (or its products/reactants) discussed
- Source of where you got the enthalpy of reaction clear in the footnotes (did you look it up or calculate it? See Part D)

C. Infographic/Poster Design [/5 C marks]

- Thermochemical reaction, including molar enthalpy, clearly visible on poster
- Information organized and easy to read
- All sources referenced and included in footnotes

Optional:

If you are looking to improve your overall thinking mark, you may do Part D and calculate the Enthalpy of Reaction using bond dissociation energy. The material will be covered after March Break. You will not lose marks if you choose to not do this part.

D. Molar Enthalpy of Reaction [/10 T marks]

- All molar Enthalpy calculations included on back of poster
- Calculated value compared with researched enthalpy of reaction in a brief description