

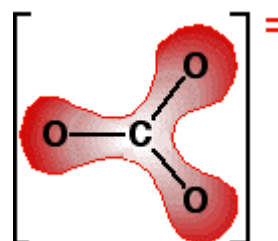
Chemguide – questions

GROUP 1: COMPOUNDS

Be sure to check what you actually need to know. This page may well contain things which aren't on your particular syllabus. It is pointless wasting time trying to do questions on material which you won't be asked in an exam.

1. The carbonates of the Group 1 metals get more difficult to decompose on heating as you go down the group.
 - a) Name the products you get when you heat lithium carbonate in the lab, and write the equation for the reaction.

b) The carbonate ion is delocalised, and the Chemguide page has this diagram showing the delocalisation. The intensity of the red colour shows where the chances of finding the delocalised electrons are greatest.



Use this to explain why lithium carbonate decomposes at a lower temperature than sodium carbonate. (Note: There is no need to repeat this diagram in your answer, but you may want to refer to it.)

- c) Write the equation for the effect of heat on sodium hydrogencarbonate.
2.
 - a) The effect of heat on lithium nitrate is untypical of the rest of the group. Name the products when you heat lithium nitrate, and write the equation for the reaction.
 - b) The nitrates of the other members of this group all behave the same on heating. Name the products and write the equation for the effect of heat on potassium nitrate.
 - c) How does the temperature needed to decompose the nitrates vary as you go down the group? Briefly explain the reason for this.
 3.
 - a) How does the solubility of the Group 1 carbonates in water vary as you go down the group?
 - b) How does the solubility of the Group 1 hydroxides in water vary as you go down the group?
 4.
 - a) Write an equation for the formation of sodium hydride from sodium.
 - b) Write the two electrode equations which would occur if you were to electrolyse molten lithium hydride.
 - c) Write the equation for the reaction of potassium hydride with water.