CHEMISTRY 12  STSE ISSUE – ENERGY DRINKS.

Reference:
http://www.labint-online.com/featured-articles/energy-drinks/index.html

One of the most rapidly growing sectors in the modern beverage market is that of the so-called “energy drinks”. Although varying in their individual composition, most energy drinks contain key ingredients such as caffeine, taurine, guarana or ginseng. There is much controversy about these drinks and their effect on the health of the person who consumes them.

Tasks
1. Go to the website below and scan the information about energy drinks in Saudi Arabia. It gives a good snapshot of a scientific study and shows you what is required before information of scientific quality is published.

In a study by chemists in Saudi Arabia, Determination of Content Levels of Some Food Additives in Beverages Consumed in Riyadh City (http://digital.library.ksu.edu.sa/V42M337R2644.pdf), the following chemicals and their average concentrations were determined.

<table>
<thead>
<tr>
<th>Additive</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspartame</td>
<td>246.7 ppm</td>
</tr>
<tr>
<td>Caffeine</td>
<td>100 ppm</td>
</tr>
<tr>
<td>Sodium benzoate</td>
<td>16.14 ppm</td>
</tr>
</tbody>
</table>


3. This website lists the concentration of caffeine in various energy drinks offering a good comparison.
http://www.mayoclinic.com/health/caffeine/AN01211

   (a) Change the caffeine concentration in the Sports or Energy Drink table to ppm.
   (b) Where did the Mayo Clinic get their information? Do you think it is reliable? Why?

4. (a) Using the information on one of the empty containers of energy drink, make a table of the contents and the concentrations.
   (b) Research using the Merck Index or Condensed Chemical Dictionary the IUPAC names for each of the additives. Indicate if there are any toxicity ratings.

5. (a) Energy Drinks are regulated in Canada as natural health products. Look at the Health Canada website to find out why.

   (b) Read the minimizing your risk section. List the points. Find the NPN on one of the containers.
   (c) Go to the Health Canada Data http://webprod.hc-sc.gc.ca/lnhpd-bdpsnh/index-eng.jsp
       Select NPN/DIN-HM in the search field and then put the NPN from your container in the Criteria space. What did you find out?

6. Have a look at this site and see the developing controversy in Canada about classification of energy drinks. Is the petition getting wide support? What do you think about this issue?
http://www.thepetitionsite.com/1/health-canada-red-bull-guru-petition/