**SUPERMARKET CHEMISTRY**

Purpose- The purpose of this project is for you to gain an understanding of where ionic compounds can be found. You will identify ionic compounds in everyday products, and practice writing formulas for ionic compounds.

Background- Ionic compounds are made when one or more ions bond with each other. The pull of the charges on the ions causes a connection between ions. Ionic compounds are all around us! We can find them in common, every day products. **For example; the following ingredients are listed on the label of cat treats:**

Ingredients- flour, liver, dried whole egg, glycerin, pregelatinized wheat flour, shrimp by-products, wheat gluten, torula dried yeast, **calcium sulfate,**  cheese meal, phosphoric acid, animal fat, **potassium chloride, salt,**  potassium sorbate, wheat middlings, color, choline chloride, **calcium carbonate**, **ferrous sulfate**, vitamin E supplement, **zinc oxide**, BHA, **cupric oxide, cobalt carbonate, manganous oxide,** vitamin A supplement, **potassium iodide**, D-calcium phatohtenate, vitamin B-12 supplement, vitamin D-3 supplement, water

The ingredients in **bold** are all ionic compounds!

Task- **Worth 60 assessment points**

You are to read the ingredients section of product labels to identify ionic compounds **formed only from the ions found on the provided list!** You are looking for compounds that are composed of ONLY ONE CATION AND ONE ANION, YOU DO NOT WANT TO INCLUDE COMPOUNDS MADE OF MORE THAN TWO IONS (example: “sodium chloride oxide”).

You must find 20 DIFFERENT ionic compounds! (if the same one is listed multiple times you will only receive credit for it appearing 1 time)

* For each compound, the following information is required:
  + Name of compound as it appears on the label 1 point each
  + Formula 1 point each
  + Name of the product in which it is found ½ point each
  + Ingredient label of the product (or picture of the label) ½ point each
* The information must be presented in the following format: (This is an example)

|  |  |  |
| --- | --- | --- |
| Compound Name | Formula | Product |
| 1. Potassium chloride | KCl | Pounce Cat Treats |
| 1. Sodium chloride | NaCl | Pounce Cat Treats |

* The list must be numbered -3 points if not numbered
* The list must be alphabetized, by compound name -3 points if not alphabetized
* Names must be of ionic compounds not elements!
* Your information may be typed or NEATLY handwritten!
* The labels of the products (or pictures) must be attached to your information in a NEATLY organized manner!
  + Do not just turn in a pile of labels!!

**Due Date: Monday April 18th. Will accept in person until end of school day or electronically received by 11:59 pm timestamp of email. (Send to BOTH: [andrea.reasin@christina.k12.de.us](mailto:andrea.reasin@christina.k12.de.us) AND** [**andrea.reasin@gmail.com**](mailto:andrea.reasin@gmail.com)**)**

**Late Dates:**

* **1 day- 95% Maximum Grade; Date Due: Tuesday April 19th.**
* **2 Days – 90% Maximum Grade; Date Due: Wednesday April 20th.**
* **3 Days – 80% Maximum Grade; Date Due: Thursday April 21st. .**
* **4-7 Days – 70% Maximum Grade: Date Due: Friday April 22nd- Monday April 25th.**
* **Beyond 7 Days – No Projects will be accepted after Monday April 25th!!**

List of Cations and Anions: Your ionic compound should consist of one cation AND one anion from this list!

|  |  |  |  |
| --- | --- | --- | --- |
| **Cations** | | **Anions** | |
| Name | Symbol | Name | Symbol |
| Aluminum | Al3+ | Arsenate | AsO43- |
| Ammonium | NH4+ | Acetate | AsO33- |
| Barium | Ba2+ | Arsenite | C6H5CO2- |
| Beryllium | Be2+ | Benzoate | BO3- |
| Calcium | Ca2+ | Bicarbonate | HCO3- |
| Chromium (II) | Cr2+ | Bisulfate | HSO4- |
| Chromium (III) | Cr3+ | Bisulfite | HSO3- |
| Cobalt (II) | Co2+ | Borate | BO33- |
| Cobalt (III) | Co3+ | Bromide | Br- |
| Hydrogen | H+ | Carbonate | CO32- |
| Hydronium | H3O+ | Chlorate | ClO3- |
| Iron (II) | Fe2+ | Chloride | Cl- |
| Iron (III) | Fe3+ | Chlorite | ClO2- |
| Lead (II) | Pb2+ | Chromate | CrO42- |
| Lithium | Li+ | Cyanide | CN- |
| Magnesium | Mg2+ | Dichromate | Cr2O72- |
| Manganese (II) | Mn2+ | Fluoride | F- |
| Manganese (III) | Mn3+ | Hydride | H- |
| Mercury (II) | Hg2+ | Hydroxide | OH- |
| Nickel (II) | Ni2+ | Hypochlorite | ClO- |
| Potassium | K+ | Iodide | I- |
| Silver | Ag+ | Nitrate | NO3- |
| Sodium | Na+ | Nitrite | NO2- |
| Tin (II) | Sn2+ | Orthosilicate | SiO44- |
| Tin (IV) | Sn4+ | Oxalate | C2O42- |
| Zinc | Zn2+ | Oxide | O2- |
|  |  | Perchlorate | ClO4- |
|  |  | Periodate | IO4- |
|  |  | Permanganate | MnO4- |
|  |  | Peroxide | O22- |
|  |  | Phosphate | PO43- |
|  |  | Sulfate | SO42- |
|  |  | Sulfide | S2- |
|  |  | Sulfite | SO32- |
|  |  | Tetraborate | B4O74- |