

Chemistry 30: Research Topic # 2

Oxidation – Reduction Processes

Research project is due _____

In this research assignment, you must work on an oxidation - reduction reaction. Suggestions include:

- Oxidation of metals - consider things above and below the ground!
- Batteries (rechargeable or non) LeClanche, alkaline, mercury, lead storage, lithium, nickel cadmium to name a few
- Fuel Cells
- Production of elements (Hall – Heroult process, Down cells, chlor-Alkali cells, etc)
- Photography, etching, metabolism, respiration, neutralization, etc.
- Catalytic reduction (incinerators, scrubbers, venturi, etc)
- Removal of metals from water / wastewater
- Glazing of stoneware / pottery
- Control of pH in water
- Organic reactions: ie: Oxidation of alcohols to ketones, carboxylic acid, aldehydes, etc
- Antioxidants – good biology related topic!
- Use of Dental Amalgam – another good biology related topic
- Do NOT be limited by these choices. You may find an oxidation reduction reaction that interests you that is NOT on this list and that is okay.

NO GROUPS CAN DO THE SAME TOPIC! You can work alone or with ONE partner!

The Research must include

- a) The oxidation-reduction reaction and the involved voltage (either spontaneous or non spontaneous) You will have to use the CRC handbook for any substances not found in chem. 30 data booklet
 - b) Describe the “process(es)” that for your topic
 - c) Describe benefits of your oxidation-reduction reaction (how is life better?)
 - d) Describe environmental, economic, political, and/or ethical concerns of your oxidation-reduction reaction.
 - e) Consider the reversibility of your reaction
 - f) Any other information that is specific to your choice
- This assignment will be done as a ONE page report. You can use extra pages for charts, diagrams, pictures, bibliography – but the text itself cannot exceed one page!
 - Marks will be deducted if you exceed the length requirement!
 - Marking Rubric is attached.
 - A few websites to get you started!
 - <https://www.wateronline.com/search?keyword=oxidation>
 - <http://en.wikipedia.org/wiki/Oxidation>

Name _____

Topic _____

Communication - writing skills	Exceeds expectations – quotations few and all properly sourced,	Meets expectations –more quotations and all properly sourced	Below expectations- evidence of plagiarism
Original work (no plagiarism)	5	3	0
Spelling and grammar done correctly	3	1	0
Total	8		
Comments:			
Required Information	Exceeds expectations: Clear understanding of topic	Meets expectations – basic understanding of topic	Below expectations: little or no understanding of topic
Reaction and voltage	4	2	0
Process of your reaction	5	3	0
Benefits	4	2	0
Environmental concerns	2	1	0
Economic concerns	2	1	0
Ethical /political concerns	2	1	0
Reversibility of reaction	2	1	0
Total	22		
Comments:			
Creativity of report	Exceeds expectations Attractive and substantial	Meets expectations	Below expectations
Physical appearance & appropriate length	4	2	0
Layout and sequencing of information	4	2	0
Total	8		
Bibliography	2	1	0

Your score is _____ / 40 marks:
Comments