

CHAPTER 7	Investigation 7.C: Analyzing Industrial Processes	BLM 7.2.10
HANDOUT		


Alberta's chemical and petrochemical industry is the second-largest manufacturing industry in the province, currently producing more than \$6 billion worth of products annually. About half these products are exported to the American and Asian markets. Some of Alberta's major players in the chemical industry include:

Agrium	Dow Chemical Canada Inc.
Albchem	Laporte Performance Chemicals
Borden	Nexen Chemicals
BP Amoco	Nova Chemicals
Canadian Fertilizers	OXY Vinyl
Celanese Canada	Shell Canada Chemical Company
Degussa-Huls Canada Inc.	Sterling Chemical

Issue

Working in groups, choose an Alberta-related industrial process to research in depth. How does the process maximize yield, minimize waste, and minimize environmental impact? Could the company that uses the process improve on any of these areas?

Gathering Data and Information

1. Choose a chemical company and find out what chemical processes it uses. Choose one process.
2. Use the Internet and print resources to research the process. 

Organizing Findings

3. Use a word-processing program to prepare a report. Your report must:
 - provide the details of your process from the raw materials to a finished product
 - include a list of by-products produced and how they are used (are they sold? discarded? burned at the plant for energy?)
 - include a schematic diagram, flowchart, or 3-D model to illustrate your chosen process
 - provide the details of the balanced chemical equations for all the reactions in your chosen process, including the details of the conditions used
 - list the ways that the overall yield of the process is maximized
 - list the ways that wastes are minimized
 - specify the ways that environmental impacts are minimized
 - include a properly cited list of references consulted

Your final report must incorporate the appropriate diagrams and charts into the body of the report.

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Opinions and Recommendations

1. Using facts from your research, state an opinion on how well the process you researched maximizes yield, minimizes waste, and minimizes environmental impact.
2. Do you think the process should be improved in any of these areas? For example, could a by-product that is currently discarded as waste be used to create something useful? Could waste be reduced further? Explain your recommendations. Why do you think the company has not improved their performance in these areas?