

[=>Back To Characterization Lab](#)

## Reverse Engineering Project

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### Problem:

You will be given two common plastic articles in their original packaging. One will be a name brand article and the second a cheaper, "imitation" article. The object of this group project is to:

1. Determine the composition and special processing features of both articles and their packaging (polymer components and additives) using common analytic techniques, some of which were discussed in this lab.
2. Determine the difference between the cheap product and the expensive product if any.

The project will result in a written report individually prepared and based on group data and a group presentation which can be done by one of the group members or by the entire group.

The intent of the group presentation is to convince an industrial manager that you are competent, have considered all alternative materials and have presented a determination which is based on a logical interpretation of the data which has been collected and the possible sources of error in the measurement. The amount of data which you collect depends on what you believe would be a reasonable effort in this setting.

The report and the presentation will be separately graded and each weighted as one lab report. All members of a group will receive the group grade for the presentation which will be partly based on the impression of members of the class who attend your presentation ([Grading Sheet for Presentation](#)).

The individual written reports should follow the format for other lab reports and will be graded following the specifications given in links to the course web page.

Materials for the reverse engineering project will be assigned from the following list:

1. Huggies and Pampers Diapers (You can determine which is cheap).
2. 3M and generic scotch tape (packaging and product).
3. CD disk, one read/write and one read only.
4. 2 bicycle tires or car tires.
5. Johnson's Baby Shampoo and Generic brand (packaging and shampoo).
6. Heinz Ketchup and a generic ketchup (packaging).
7. Video cassettes, 3M and generic.
8. Sunglasses Polaroid and cheap brand.

The project, at early stages might involve determination of solubility and flammability for example. **You are expected to work on this project throughout the quarter** although presentations occur in the last two weeks and the report is due the last Friday of classes. No late reports will be accepted, i.e. a late report is given a grade of zero.