

LIP GLOSS

Bella Productions

The workshop will take you through a batch production of handmade lip gloss and allow us to introduce the concepts of automation. At Emerson, we sell automation hardware and software products and services to companies that make the gasoline for your cars, the food for your tables, the makeup and cleansers for your face, plastics for your phone... all kinds of thingsOur products help them make their products safely, quickly and with better quality.

♥ **Safety-Health-Environment (SHE) Engineer:** A SHE Engineer is responsible for safety in the workplace. She inspects and maintains equipment, identifies potential hazards, and designs ways to prevent them. A SHE engineer might be involved when new products are being consider to design ways to manufacture or work with the new products, when new buildings are being built, when new procedures are being made to ensure that they are safe, pose no health issues, and acceptable to the environment.

Ensure that anyone handling materials or in the area of materials is wearing their safety glasses and gloves. Note any potential safety precautions on the label.

♥ **Process Engineer:** A process engineer studies how to produce and manufacture different products. She looks as safety, quality, ingredients, and the efficiency of how a product is produced; then she makes recommendations to improve the process for profitability.

You have been given a "Lip Gloss" recipe from the research pilot plant and you must scale it up to work in your plant. A pilot plant is a process area that makes products using recipes in small batches to determine the steps needed to make a quality product. In the real production plant, we need to make 6 containers and each one will contain 10 g of product to ship off to your Bella Productions Stores.

Determine how much of each ingredient you need and take your inventory request to the Supply Engineer for approval. The entire team can help.

♥ **Supply Engineer:** A supply engineer supervises the sourcing of equipment and raw materials to make the most efficient and profitable products possible. A supply engineer may need to anticipate and plan material needs to insure they are

available and plan for alternative sources. They may need to plan ahead for natural disasters and project slowdowns when materials become scarce.

Based upon the process engineer's requirements, go to the plant warehouse with your necessary list of supplies and bring them back to your plant. (Please weigh/measure the quantity of each supply and bring back to your work area.) Get your jars for the gloss.

♥ **Production Engineer:** A production engineer is involved in the entire process of making a product. They keep costs to produce the product low and maintain the perfect level of quality. They may calculate yield of product from the production and determine cost of making the product information.

Set up Assembly line and assign tasks for making the "Lip Gloss". Start timer and make products following the recipe step by step.

♥ **Quality Engineer:** A quality engineer makes sure the processes are working according to specifications, industry standards, and the processes run smoothly. She may anticipate potential problems and ways to avoid them. When a potential problem arises, she develops a strategy to resolve the problem and organize the process so it can be avoided in the future.

Once completed stop timer and note the time. Finish production notes about the process. Clean supplies and make them ready for the next production run.

♥ **Packaging Engineer:** A packaging engineer design and constructs the containers for the products you make. They consider the chemical properties of the product to determine what container might be best without causing a reaction with the product, finding one that will allow the product to last on the shelf in the store, and meet the required environmental needs: reduce, recycle, reuse.

Once "Lip Gloss" is produced; Make labels and label product for sale, adhere to containers, and then package it for the customers. What tools will you use to get the materials into the containers? Don't forget an ingredients list and special instructions.

♥ **Technical Marketing Manager:** A technical marketing manager helps sell technology products like computers. She may determine what products to develop, determine markets, set price, and develop promotional materials.

What should be the name and price of your Lip gloss? Who should you sell it to? What materials will you need to market the Lip gloss?

LIP GLOSS

RECIPE

PILOT PLANT RECIPE (10 GRAMS)

PRODUCTION RECIPE (60 GRAMS)

* **HINT:** to scale up to production size divide the quantity you need to make by the quantity of the pilot plant recipe = scale up multiplier

SUPPLIES

1 tablespoon petroleum jelly	x scale up multiplier	_____ TBS petroleum jelly
1 teaspoon drink mix	x scale up multiplier	_____ tsp drink mix
1/24 teaspoon of cake sparkles	x scale up multiplier	_____ tsp cake sparkles
1 labels	x scale up multiplier	_____ labels
1 containers	x scale up multiplier	_____ containers

EQUIPMENT

Mixing vessel

Measuring spoons

Mixing Spatula

Popsicle stick

Paper Towels

Safety Goggles (for each team member)

Safety gloves (for each team member)

Markers for labels

INSTRUCTIONS

1. Grab your supplies.

You'll need petroleum jelly, drink mix, cake sparkles, a mixing vessel, measuring spoons, containers and a mixing utensil.



2. Add the petroleum jelly.

Measure _____tablespoons into the empty container.



3. Add the drink mix.

Measure _____teaspoons of drink mix over the petroleum jelly.



4. Add cake sparkles.

Add _____ teaspoons of cake sparkles to mixture.

(Caution: the sparkles may come out quickly and can get messy).



5. Stir the mixture thoroughly.

Stir all ingredients until well combined.

6. Package Lip Gloss.

Seal the container and carefully wipe the edges clean. Attach a label with ingredients, safety precautions and a label with the company name.



PRODUCTION NOTES:

Have one person or the entire group discuss your results.

1. Do the finished products look the same? Smell the same? If no, how are they different?
2. Do the lip gloss containers weigh the same amount? Measure and put the amounts below? If different why? Why is this important?

(_____ , _____ , _____ , _____ , _____ , _____)
3. Do the labels look the same? Are the labels applied in the same place on each container? Why might this be important?
4. How long did it take you to make multiple containers? How many could you make in a day? How long would it take for you to make 6000 containers? Could you speed up? Why might this not be a good idea?
5. Look around the room. Do your lip glosses look the same as the other groups?
6. How might we improve the production process to make more identical lip gloss? How do we improve the speed without sacrificing quality?