

## HOUT 5

(CLIL Lesson Plan – Cakes and Cake Decorations: Icing)

### Case Study: “Troubleshooting”

Mode of interaction: teamwork

## TEAM 1

### Case 1

#### Technological problem:

You work as a confectioner in a shop of decorative semi-finished products. You need to prepare fondant syrup, but it turned out that there is no molasses in the production, therefore it must be replaced by other types of anti-crystallizers. The finished syrup has a dark color, impurities on the surface, and it is of liquid consistency.

#### Manufacturing defects identification:

1. Was there a violation of the technological process for preparing the syrup?
2. How does the amount of water affect the solubility of sugar and the process of preparing fondant?
3. Why is foam removed from the surface of the syrup?
4. What types of anticrystallizers are used in the preparation of fondant? Justify their role.
5. Perform a substitution of molasses with:
  - Inverted syrup;
  - Citric acid,
 and calculate the amount needed for 1 kg of finished fondant.
6. Determine by organoleptic methods whether the syrup was cooked correctly.
7. Complete the table: "Types of Defects in Fondant Syrup."

#### Complete the table: "Types of Defects in Fondant Syrup."

Defect	Cause	Solution
Coarse crystalline texture	Insufficient anticrystallizers or slow cooling of the syrup	Follow the recipe and cool the syrup quickly
Dark fondant color	Overcooking the syrup or using poor-quality sugar	Control the cooking temperature and use high-quality ingredients
Sticky consistency	Excess anticrystallizers or undercooking the syrup	Accurate dosing of anticrystallizers and careful monitoring of the cooking process
Presence of sugar crystals	Insufficient stirring or leftover crystals on the pot walls during cooking	Stir thoroughly and wash down crystals from the pot walls during syrup preparation

B) General topic: Preparation of icing.





## TEAM 2

### Case 2

**Topic:** Cooling of Fondant Syrup

#### Technological problem:

The confectioner needed to cool the syrup quickly. He/she placed the saucepan with the syrup into a small container with water and left it to cool. The syrup took a long time to cool and became thick.

#### Manufacturing defects identification

1. What mistakes were made during preparation?
2. What changes occur in the syrup during whipping?
3. Prove that fondant is a complex physical system.
4. How does the preparation process differ between small and large quantities of fondant? What equipment is used?
5. Explain the term "Fondant maturation."
6. What does the appearance of thick sugar syrup on the surface of the fondant indicate?
7. Create a table of defects.

**Complete the table: "Types of Defects in Fondant Syrup."**

Defect	Cause	Solution
Coarse crystalline texture	Insufficient anticrystallizers or slow cooling of the syrup	Follow the recipe and cool the syrup quickly
Dark fondant color	Overcooking the syrup or using poor-quality sugar	Control the cooking temperature and use high-quality ingredients
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**B) General Topic:** Preparation of Basic White Fondant





## Team 3

### Case 3

**Topic:** Whipping syrup into Icing. Maturation of Icing

#### **Technological problem:**

You need to whip syrup into icing. The confectioner used utensils and equipment made of aluminum. During whipping, the mass turned gray, whipped quickly, but became hard and inelastic.

#### **Manufacturing defects identification**

1. What mistakes were made in the preparation?
2. What changes occur to the syrup during whipping?
3. Prove that icing is a complex physical system.
4. What is the difference between the process of preparing icing in small and large quantities? What equipment is used?
5. Explain the term: “maturation of icing”.
6. What does the appearance of thick sugar syrup on the surface of the icing indicate?

**Study the table summarizing potential defects, their causes, and solutions during or after the maturation process:**

Defect	Cause	Solution
Icing is too soft/sticky	High humidity, insufficient setting time, or excess liquid in the recipe	Allow more time to set in a cool, dry environment. Adjust recipe by reducing liquid or adding stabilizers like powdered sugar.
Icing cracks or dries out	Overexposure to air or low humidity conditions	Cover the cake with a dome or wrap during maturation. Use a layer of plastic wrap or keep in an airtight container.
Icing fails to harden	Excess moisture in the icing or high humidity in the environment	Adjust recipe to balance moisture (e.g., less liquid or more sugar). Use a dehumidifier in the setting area.
Flavors are dull	Insufficient time for flavors to meld or poor-quality ingredients	Allow the icing to mature for a few hours. Use high-quality flavorings or extracts.
Buttercream forms crust	Exposure to air for too long	Cover the cake or store it in a cool, airtight space to prevent excessive crusting.
Fondant becomes dry/cracks	Overexposure to air or kneading with too much cornstarch	Store fondant-covered cakes in a sealed container or lightly brush fondant with water if cracking occurs.





<b>Defect</b>	<b>Cause</b>	<b>Solution</b>
Ganache becomes grainy	Overheating during preparation or insufficient stirring while cooling	Ensure ganache is heated gently (not boiled). Stir constantly as it cools to maintain smoothness.
Royal icing doesn't harden	Excess humidity or incorrect sugar-to-liquid ratio	Reduce liquid in the recipe. Let the icing dry in a dry, ventilated space. Avoid humid environments.
Glaze runs off the cake	Cake is too warm or glaze is too thin	Cool the cake completely before applying. Adjust glaze consistency by adding more powdered sugar.

