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Industrial Technology Development Institute (ITDI-DOST)

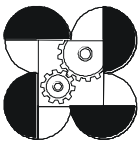
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CANDLE MAKING



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CANDLE MAKING

INTRODUCTION

A candle is a cylinder of tallow, wax, or other solid fat, containing a wick, to give light when burning. It represents one of the ancient forms of illumination, which lengthened days, and lighted feast.

Many homemade candles are fashioned entirely from paraffin. It is inexpensive and easy to obtain. Candle made from it looks beautiful and burns merrily. However, paraffin has a low melting point. Candles made entirely from it drip freely and have a considerable quantity of melted wax as they burn.

There are various materials, which when added to paraffin, harden a candle and give it a higher melting point, such as stearic acid, polyethylene wax and beeswax. Candles may be made by casting/molding, pouring and dipping.

DIPPED CANDLE

Candle dipping offers a method of producing several hundreds of candles a day with simple tools. This technique consists of immersing the candle wick in molten wax then withdrawing it, so that it picks up wax as it emerges. The wax is allowed to cool and the process repeated until the desired thickness is obtained.

Materials

paraffin wax, 90%
polyethylene wax, 10%
thread for candle wick/cotton wick
technical dye (for colored candles)

Supplies

stove
vat/wax container
dipping mold
wick holders
storage racks
cutter
dial thermometer
stirrer (wood/bamboo)
weighing scale (10-kilo cap.)

Procedure

1. Prepare the candlewick. Adjust the size of the wick to the diameter of the candle and the fusibility of the candle material. The following is a rough guide to the selection of wick size:

| SIZE OF WICK | CANDLE DIAMETER |
|--------------|-----------------|
| ½" diameter | 6 – 9-ply |
| 1" diameter | 12 – 15-ply |
| 2" diameter | 17 – 25-ply |
| 3" diameter | 27 – 35-ply |

2. For 5 kilos preparation of wax, weigh 4.5 kilos of paraffin wax and .5 kilos of polyethylene wax and place in the vat/wax container. Melt the wax in a double boiler container. Wax is inflammable and should not be melted over direct heat. A well-ventilated workshop should be maintained.
3. Heat gently until all contents have melted and blended together. Allow the mixture to cool to about 75° – 80°C before attempting to dip.
4. Dip the candlewick in the melted wax and withdraw as smoothly as possible, so that the wax deposits are even layers with no drips or surface imperfections.
5. When the desired candle size is attained, remove the lower 2 cm or so to obtain candles with uniform diameter.
6. Hang candles to dry.
7. Let candles cure for 2-3 days before using them to harden the wax and for perfect setting. Store in a dry place.

SCENTED CONTAINER CANDLE

Materials

paraffin wax
wick (nylon wick)
technical dye (oil soluble)
essential oil (organic/synthetic)

Supplies

glass container/ceramic
gas stoves
double boiler container
wick holder (bamboo stick)
dial thermometer
stirrer (bamboo/wood)
weighing scale
blade cutter
scissors

Procedure

1. Prepare candlewick. Dip the desired length of wick in the melted wax. Remove and hold it taut while it dries and hardens for a minute.
2. Fix a wick base or sustainer to one end of the wick. (Sustainer – a little round metal; flat and with hole in the middle.)
3. Prepare the container. Glue the wick base/sustainer into the bottom of container with hot glue and let it dry.
4. Wrap the other end of the wick around a bamboo stick and lay across the mouth of the mold in order to hold the wick in place while the wax hardens.
5. Melt the wax. Weigh 100 parts of pure paraffin wax and place in the double boiler container.
6. Heat gently until wax has melted. Allow the mixture to cool to about 80°C and add scent and color, stir to mix thoroughly.
7. Pour the wax slowly into container. Leave 1” space at the top of the edge.

MOLDED SCENTED CANDLE

Materials

paraffin wax
polyethylene
wick for candle (cotton wick)
technical dye (oil soluble color)
essential oil (synthetic/organic oil)

Supplies

candle mold (metal, plaster, silicon rubber mold, etc.)
gas stoves
double boiler container
storage racks
wick holder (bamboo stick)

dial thermometer
stirrer (wood/bamboo)
weighing scale (10-kilo capacity)
blade cutter (big size)
scissors

Procedure

1. Prepare the mold. If you are using metal mold, make sure the mold has a mouth wider than the base so that your candle can slide out easily. Oil the inside of the mold with vegetable oil.
2. Prepare the candlewick. Adjust the size of the wick to the diameter of the candle and the fusibility of the candle material.

The following is a rough guide to the selection of wick size:

| SIZE OF WICK | CANDLE DIAMETER |
|--------------|-----------------|
| ½" diameter | 6 – 9 ply |
| 1" diameter | 12 – 15 ply |
| 2" diameter | 17 – 25 ply |
| 3" diameter | 27 – 35 ply |

3. Melt the wax. Weigh 90 parts of paraffin wax and 10 parts polyethylene wax and place in the double boiler container. Wax is inflammable and should not be melted over direct heat. A well-ventilated workshop should be maintained.
4. Heat gently until all contents have melted and blended together. Allow the mixture to cool to about 80°C and add scent and color. Stir to mix thoroughly.
5. Pour the wax slowly into the mold. Leave a little space at the top edge.
6. Insert the wick into the center of the mold. Wrap the other end of the wick around the bamboo stick. This holds the wick in the center of the wax while it cools.

7. Remove the candle from the mold. If candle doesn't slide out from metal mold, immerse the mold in a very hot water for a few seconds. This will slightly melt the outside of the candle and it should slide out.

DECORATIVE/NOVELTY WAX

MOLD MAKING – SILICON RUBBER MOLD

Materials

| | |
|------------------|----------------|
| silicon rubber | blade cutter |
| catalyst | scissors |
| modeling clay | nylon brush |
| petroleum jelly | ice cream cup |
| plaster of paris | <i>basahan</i> |
| modeling tools | small basin |
| knife | |

Procedure

A. Preparation of one-sided silicon rubber mold

1. Prepare original model (preferably intricate designs such as animal figures, birds, fruits, etc.) and apply petroleum jelly to the surface of the model.
2. Put clay barricade around the prepared model with $\frac{1}{2}$ of an inch allowance in every side. Set aside.
3. Prepare enough mixture of silicon. (Ratio: 100 grams of silicon + 2.5 ml of catalyst)
4. Using a stick, apply first coating of silicon mixture evenly to the surface of the model. Use only half portion of the silicon mixture.
5. When the first coating is almost dried up, apply the other half portion of the silicon mixture on the first coating of silicon.
6. Set aside and wait until the silicon mixture hardens like a rubber band. This will take about 1 to 2 hours.

B. Preparation of plaster backing – using Plaster of Paris

1. Do not remove the clay barricade and model inside the silicon mold.
2. Prepare enough mixture of Plaster of Paris. (Ratio: 1 cup of water + 1½ cups of Plaster of Paris powder)
3. Sprinkle the Plaster of Paris into the container with water and let it stand for one to two minutes.
4. Stir until the mixture reach the consistency similar to condensed milk or cream.
5. Pour and apply evenly the plaster mixture on top of silicon mold.
6. Wait for 6 minutes or until the plaster hardens.
7. Remove the clay barricade, then the plaster backing.
8. Invert the mold upside down and remove the model inside the silicon mold.
9. Trim with scissors the side of silicon rubber mold. Set aside for casting.

MOULDING OF DECORATIVE WAX

1. Melt 4 kilos of paraffin, 200 grams of polyethylene wax and 200 grams of crystal wax.
2. Prepare the silicon rubber mold and candle wick. Remove all the impurities.
3. Put the silicon rubber inside the backing.
4. Pour the melted wax mixture into rubber mold.
5. Wait for 15 minutes or until the wax mixture thoroughly dries and becomes hardened.
6. Remove the formed wax from the rubber mold and trim with knife.
7. Paint with oil color, and then spray with acrylic gloss lacquer to make the object shiny.

Suppliers of WAX, SCENT and ACCESSORIES

- (1) **GODY WAX CENTER**
Divisoria, Binondo
Juan Luna Branch – Tel. Nos. 242-1840/242-1841
C. M. Recto Branch – Tel. Nos. 244-1372/244-3727
Sto. Cristo Branch – Tel. No. 242-5359
- (2) **POLYMER PRODUCTS, INC.**
11 J. Boris St., Bagong Ilog, Pasig City
Tel. Nos . 671-9837 to 39

Supplier of GLASS CONTAINER

- (1) **SAN JOSE GLASS CORP.**
c/o Bobeth Barrion
Tel. No. 533-6691

Supplier of PLASTER OF PARIS

- POLYMER PRODUCTS, INC.**
11 J. Boris St., Bagong Ilog, Pasig City
Tel. Nos. 671-9837 to 39
- Masinag Branch***
Marcos Highway, Mayamot, Antipolo, Rizal
Tel. No. 681-9124
- Taytay Branch***
Unit 18 Luxury Classic, Taytay
Tel. No. 679-4156
- Pasay Branch***
Unit F. 245 Fernando Rein St.
EDSA Rotonda, Pasay City
Tel. No. 510-1125
- Alabang Branch (in front of Nestle Corp.)***
National Hi-way (beside Aguila Glass)
Tel. No. 543-8705

Supplier of ESSENTIAL OIL

- MANCOR MARKETING**
3399 San Jose St., Sta. Mesa, Manila
Contact Person: Thelma or Rose
Tel. Nos. 715-0325/713-3259