TIC GUMS Technically Speaking

Using Gums in Chocolate Panning

Panning is frequently used to apply a chocolate coating to centers that have sizes or shapes that preclude enrobing. Typical examples are malted milk balls, chocolate raisins, yogurt-flavored items and chocolate-coated nuts. In most cases, chocolate panning is a four-stage process that includes pre-sealing, coating, polishing, and glazing.

1. Pre-Sealing
When centers contain oil, they must be pre-sealed or the oil will migrate to the surface, spoiling the appearance of the finished confection. Pre-sealing is achieved by coating the centers with a syrup of TicaPAN® 311 or TIC Pretested® Pre-Hydrated® Gum Arabic FT Powder to wet and form a film on the surface of the centers. Pre-sealing also results in a smoother center surface and, in the case of chocolate-coated nuts, pre-sealing also prevents the nuts from splitting during the panning operation.

2. Engrossing
This is the process of building the chocolate coating onto the center. This is completed by applying thin layers of chocolate in repetition until desired thickness is achieved. The process is controlled by manipulating the temperature of the chocolate in order to adjust the viscosity and using cooling air to resolidify the chocolate.

3. Polishing
Typically after engrossing the chocolate is dull and can be sensitive to heat and oxidation. A layer of TicaPAN 311 or TIC Pretested Pre-Hydrated Gum Arabic FT Powder is applied to provide gloss and help protect the chocolate coating.

4. Glazing
This is used in combination to protect the gloss and add an extra sealing layer to the chocolate. Typically an alcohol-based shellac is used to provide the glaze.

Prototype Formulation

Ingredients	*lbs.*
Center- Peanuts	60.0
Sealing Syrup[1]	0.5-1.5
Bakers Chocolate for Engrossing	~120
Polishing Syrup[2]	1.2-2.6
Glazing Compound- Shellac	0.25-0.75

[1] 40% TicaPAN 311 or Gum Arabic
[2] 20-30% TicaPAN 311 with ~5% Corn Syrup

Batch weight will depend on size of pan and density of centers. The amount of chocolate added to the centers is personal preference. Typically it is around 2:1 chocolate to center ratio.

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Procedure

1. **Pre-sealing**
   Count 20 pieces of the centers and weigh. Record weight. Place 60 lbs. of centers into a pan. Start the pan at 25 rpm. Ladle 0.5 lb of the sealing syrup (TicaPAN 311 or Gum Arabic) onto the peanuts and allow the batch to run until all surfaces are wet for about 1-2 minutes. Apply full amount of drying air into the pan to dry the sealing syrup. Repeat process for the second and third application to ensure a complete and uniform seal.

2. **Engrossing**
   Take 20 pieces of sealed batches and weigh. Record weight. Melt the chocolate and keep melted between 110-120°F. If using a clean pan, spread 1-2 lbs of chocolate inside the pan before engrossing. Center should be about 60°F. Start the pan and begin coating with chocolate (by spraying or using a ladle). Apply enough chocolate to evenly wet the surface of the nuts. If the nuts begin to stick reduce the amount of chocolate used. Use cool air as required to set the chocolate and dry the surface. Repeat these steps until you reach 10 cycles. Weigh 20 pieces and calculate chocolate to center ratio. Continue to repeat the steps until the desired chocolate to center ratio is 2:1.

   Optional step – Apply a hard panned candy shell to the chocolate

3. **Polishing**
   Place cool solid pieces into a clean pan. Start the pan and add 1.5 lbs of polishing solution or enough to evenly wet all pieces. Allow the pieces to tumble for a couple minutes and then apply some air to dry the pieces. Repeat this process with half the amount of polishing solution. Chocolate pieces should produce a gloss and be dry to touch. If not, apply one more charge of the polishing solution.

4. **Glazing**
   Use a clean ribbed pan. Without air, start the pan and apply enough glaze to just wet the surface. Once the pieces are evenly coated stop the pan and apply some drying air. Let the pieces dry for 30 minutes with occasionally jogging the pan to prevent sticking. Remove from pan and the pieces are finished.

Sample Batch Sheet: The chart on the next page provides a way to document the panning process in order to ensure the correct amount of material is used and pieces are meeting desired finished weights.

If you need further assistance, contact the Gum Gurus® at:
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Product: Chocolate Panning and Hard Panning of Peanut Candies (Batch Record)

Step	Amount Needed	Amount Added	20 Piece Weight
Wt. of Peanuts	60 lbs		
Wt. of 20 pcs.			
Sealing Syrup Charge #1 Charge #2 Charge #3	 0.5 lbs 0.5 lbs 0.5 lbs		
Engrossing			
1	1 – 2 lbs		
2	1 – 2 lbs		
3	1 – 2 lbs		
4	1 – 2 lbs		
5	1 – 2 lbs		
6	1 – 2 lbs		
7	1 – 2 lbs		
8	1 – 2 lbs		
9	1 – 2 lbs		
10	1 – 2 lbs		
Polishing #1	1.5 lbs		
Polishing #2	0.75 lbs		
Polishing #3	0.3-0.5 lbs		
Glazing	0.25 – 0.75 lbs		
Final			~180 lbs

Product: Chocolate Panning and Hard Panning of Peanut Candies (Batch Record)

Step	Amount Needed	Amount Added	20 Piece Weight
Wt. of Peanuts	60 lbs		
Wt. of 20 pcs.			
Sealing Syrup			
Charge #1	0.5 lbs		
Charge #2	0.5 lbs		
Charge #3	0.5 lbs		
Engrossing			
1	1 – 2 lbs		
2	1 – 2 lbs		
3	1 – 2 lbs		
4	1 – 2 lbs		
5	1 – 2 lbs		
6	1 – 2 lbs		
7	1 – 2 lbs		
8	1 – 2 lbs		
9	1 – 2 lbs		
10	1 – 2 lbs		
Polishing #1	1.5 lbs		
Polishing #2	0.75 lbs		
Polishing #3	0.3-0.5 lbs		
Glazing	0.25 – 0.75 lbs		
Final			~180 lbs

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Hard Panned Candies

Hard Panning[1] is a process used to create a protective candy shell coating that can be applied to various center materials such as gum, chocolate, and nuts. While panning confections is certainly an art form, the following steps will help guide you through the mechanics of producing a hard panned shell. Hard panning can be a four-stage process that includes pre-sealing (optional), engrossing, finishing, and polish.

1. Pre-Sealing

This is the optional step of sealing the center to help adhesion of the shell. A typical pre-sealing process is as follows: the centers are placed in a pan revolving at 20 to 25 rpm to promote even coverage and to prevent the pieces from sticking together. Typically about 1% syrup of the weight of centers is used to sufficiently wet the surface of the centers evenly. This may change depending on room conditions and how the syrup covers the centers. If the syrup does not cover centers, increase charge usage level. If the charge will not dry then decrease charge usage level. The surface is then dried by addition of cool, dry air. The drying air should be 200-400 cfm with 65-70°F (18.3-21.1°C) for hollow gumballs and 75-80°F (23.9-26.7°C) for pellet gum. The centers build frictional heat which can cause the gumballs to deform and collapse. If the air is not cool enough for proper panning stop the pan intermittently to prevent frictional heat buildup. The process is repeated one to two more times for optimum sealing.

2. Coating or Engrossing

This is the process of applying sugar or sugar alcohol syrup to build the shell. It will require the same room conditions as the pre-sealing step. The difference between engrossing and pre-sealing is the syrup. Typical engrossing syrups are high solids solutions comprised of either sugar or sugar alcohols that contain approximately 3.0% TicaPAN/Gum Arabic. The following are suggested brix and temperatures for various types of syrups:

Sugar based syrup	76-78 brix	140-160°F (60-71°C) applied
Sorbitol	70-72 brix	room temperature
Maltitol	70-72 brix	140-160°F (60-71°C) applied
Xylitol	76-78 brix	140-160°F (60-71°C) applied

[1] This process is intended for use where panning is manual as opposed to automated.

The syrups are then applied around 1% by weight of gum centers and tumbled until evenly coated. Drying air should be applied at 200-400 cfm with temperatures at 65-70ºF (18.3-21.1ºC) for hollow gumballs and 75-80ºF (23.9-26.7ºC) for pellet gum. If the charge dries too quickly, the surface can become rough. The slower the charge dries, the more likely the pieces will stick together. Adjust the amount of syrup and drying air to get a smooth surface without the pieces sticking together to form "doubles". If conditions in the room are not ideal, dusting powder may be required to assist in drying the charge. Keep in mind that the more dusting powder added to the gum piece the weaker the shell becomes and less crunch you receive. Dusting powder can consist of a fine ground sugar or sugar alcohol usually the same as the syrup (sorbitol syrup use sorbitol, sugar syrup use sugar, etc.) In the engrossing stage the addition of flavor oils is also common. The flavor oil can be directly added to the gum pieces and tumbled for even coating. The oil can be dried using dusting powder and then the regular engrossing process can continue. The flavor oil addition is typically added 2-4 times through out the engrossing stage. This process of adding a charge of syrup and drying is repeated until desired weight is achieved. Typically around 20-50% of the gum center weight depending on product

3. Finishing

This process is where the final color is added and the finished gum piece is smoothed out. Typically, the engrossing stage is used to add bulk to the shell which is not the desired smoothness for a finished product. To smooth out the gum and get desired appearance, the engrossing syrup and process is adjusted. The brix of the engrossing syrup is lowered about 5-10 brix. The amount of charge applied to the gum is lowered and no drying air is applied. The gum is tumbled and the next charge is applied before the previous charge completely dries. The syrup in this stage also contains the color. Lakes tend to add a consistent color but weaken the shell due to size. Dyes can create inconsistency in batch to batch depending on the amount and concentration added to the gum piece. The final charge should be completely dried and aged 24-48 hours in cool dry room to ensure all moisture is out of shell.

4. Polishing

Beeswax works best overall as a polishing agent but is very unforgiving if added improperly. Carnuba wax gives nice hard shell but needs to be added to very dry product or it will lump. Glaze adds protection to wax. Unrefined glaze provides a slow polish where refined glaze contains no wax which dries quickly and has an immediate shine. Usage levels will depend on the brand and type being used.

Environmental conditions and type of syrup will affect how the panning process is completed. Panning room conditions are critical to the success of the finished product. Ideally, the panning room should be between 65-70ºF (18.3-21.1ºC) with a relative humidity around 25-30%. Too much humidity can cause condensation on the gum centers preventing the shell from adhering. This will also make it difficult to dry the engrossing layers properly. Additionally, gum centers should be conditioned to the room environment before panning. This is very evident when panning gumballs as the temperature difference will cause condensation on the gum centers.

PROTOTYPE FORMULATION

1. **Pre-sealing:**

Pre-Sealing Syrup

60% Water
40% Stabilizer (TicaPAN 311, TicaPAN Quick Crunch, Gum Arabic)

1. Add stabilizer to water and mix
2. Once completely dispersed heat to 185°F
3. Stop mixing and allow solution to cool down
4. Remove foam from surface

2. **Engrossing/Finishing:**

Engrossing Syrup

~70% Sugar (sugar, dextrose, maltitiol, sorbitol, xylitol, etc.)
~ 3% Stabilizer (TicaPAN 311, TicaPAN Quick Crunch, Gum Arabic)
~27% Water

1. Add stabilizer to water and mix until completely dispersed.
2. Begin heating and adding sugar
3. Continue to heat solution until temperature reaches 212°F
4. Cool solution to proper temperature and adjust brix to desired range

Engrossing Levels:

Dextrose based syrup	76-78 brix	140-160°F (60-71°C) applied
Sorbitol	70-72 brix	room temperature
Maltitol	70-72 brix	140-160°F (60-71°C) applied
Xylitol	76-78 brix	140-160°F (60-71°C) applied

Finishing Levels:

Dextrose based syrup	66-68 brix	140-160°F (60-71°C) applied
Sorbitol	60-65 brix	room temperature
Maltitol	60-65 brix	140-160°F (60-71°C) applied
Xylitol	66-68 brix	140-160°F (60-71°C) applied

For samples of these products or for assistance please contact us at (800) 899-3953 or visit www.ticgums.com.

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