



How to get the best results from Stephenson's Crystal Melt & Pour Products

Crystal soap base is a versatile and easy to use product. Soap bars can be made in almost any color, can be perfumed and can incorporate novelty items.

Basic procedures:

Finished soap bars are made by melting the Crystal Soap Base and pouring the melted soap into molds. The soap bar will always be of good quality if this procedure is followed exactly.

1. Molds.

The molds must be clean and manufactured from suitable materials. Molds made from any plastic material are suitable but molds made from iron, copper or brass may discolor the soap bar.

2. Melting the soap base.

The soap base must be heated in a suitable container to melt it. Stainless steel containers are ideal, whereas iron, brass or copper will discolor the soap. Heating must be done carefully and slowly to avoid overheating the soap. If the soap base is overheated for extended periods it may become dark in color. If the soap is being heated by electric element or by gas flame it must be stirred continuously to avoid overheating.

3. Correct pouring temperature and pouring technique.

The soap base should be completely melted and taken to a temperature between **155 and 165 degrees F** (70-75 degrees C). It should be slowly stirred while warming to keep the temperature uniform. When the temperature is between 155 and 165 degrees F, stirring should be stopped to allow air bubbles to rise out of the soap. Best results will be obtained if the soap is poured into molds at approximately 150-155 degrees F, and from the

bottom of the container used for melting. For example, a tea kettle with lid is ideal, as the liquid comes from the bottom of the vessel where there are no bubbles. In contrast, if pouring from a Pyrex container, liquid is pulled from the top where air bubbles can collect, thus pouring that air into the mold. If the soap is poured from the top of the container, it should be poured very slowly to avoid getting air bubbles in the bar of soap. Once poured, the soap bars should be handled carefully until they are completely cool. (below 86 degrees F)

****Please note:** Stephenson soap bases may set up quicker than other soap bases, therefore it is imperative that you pour at the recommended temperature, else the product may start to “set” too early and it may appear cloudy due to air bubbles getting trapped into the base.

4. Removal from the mold, packing and storing.

The soap bar will release from the mold more easily if it has been left for 24 hours in a cool place. When the soap bar has been removed from the mold it should be wrapped immediately in clear film to retain an attractive appearance. The soap should be stored at temperatures not below 40 degrees F and not above 86 degrees F.

Perfuming soap bars.

1. Understanding perfumes.

Perfumes are complex mixtures of organic substances. A perfume will contain many substances with individual odors and it is the mixture of these odours which gives a perfume its individual smell. Other substances are added to perfumes and some examples are:

- **Diluent:** added to improve the solubility of the perfume. (see later)
- **Fixative:** added to reduce the volatility of the odor-producing chemicals and make the perfume odour last longer. (see later)

2. Correct choice of perfume.

Trials in our laboratories have shown that most perfumes can be used successfully in Crystal soap base. However some points should be noted.

Perfume manufacturers produce different blends of perfume for different applications. A perfume for use in scented oils or candles will contain a wax or oil soluble diluent which may cause problems if it is used in water or soap based products. Some perfume oils are sold as ingredients for Fine Fragrances and contain high levels of fixative. The fixative may be waxy in composition and this too can cause problems in soap based products.

When asking perfume manufacturers to supply perfumes you should always ask for product suitable for incorporation into soap bars. Before using your perfume in full scale production, you should carry out compatibility trials

3. Conducting compatibility trials.

Perfumes need to be checked for:

- ease and completeness of solubility
- stability in the soap bar at low temperature
- color in the soap bar
- compatibility with the bar wrapper.

The concentration of perfume used in the soap bar will determine the odor level of the bar. High concentrations of perfume will give a bar with a strong perfume smell but may cause problems with color, clarity at low temperature and deterioration of the wrapping. Perfume concentrations of 1% or less usually give an acceptable odor and rarely cause stability problems. Levels of 2% or more may affect color, may cause wrapping film to deteriorate quickly and have been shown to affect clarity of soap bars at low temperature. To carry out a compatibility trial with perfume proceed as follows:

- Take enough weight of Crystal soap base to fill 2 small molds
- Carefully heat the soap base to 160 degrees F and melt it completely.
- When the melted soap has cooled to 150 degrees F, add 1% of the perfume being evaluated and stir until completely dissolved.

- Pour equal amounts of the perfumed soap into each of two molds and check that the soap is clear and free from air bubbles.
- Allow to stand overnight, remove from the molds and wrap the bars tightly in shrink film.
- Label the bars with the perfume name or reference number and the words “1% concentration.”
- Repeat the above procedure using 1.5% of perfume and 2% of perfume and label the bars with the perfume name or reference number and the percentage used.
- Make 2 more bars in the same way but do not add perfume. (these bars are called reference bars and are used to make comparisons)
- Store one of each perfumed bar and one reference bar in a refrigerator at about 40 degrees F. **Do not store in a freezer!**
- Store the other bars at room temperature.
- Compare the appearance of the test samples with the reference samples daily. At the end of 7 days the trial is complete. If the bar containing 2% perfume stored in the refrigerator is clear and the bar stored at room temperature is clear and not discolored then the perfume is satisfactory for use at 2%. If the bar containing 2% perfume is cloudy but the bar containing 1.5% perfume is clear and not discolored, then the perfume is satisfactory for use up to 1.5% concentration and so on. In this way the maximum concentration of any perfume giving a transparent bar can be found.
- With some perfumes, the bars will remain transparent but may be slightly discolored compared with the reference sample. If the bars are going to be colored with dyes or if discoloration is slight, the perfume may still be acceptable.
- Next, the shrink-wrap should be examined. Take the bars stored at room temperature and compare the appearance and feel of the shrink-wrap on the perfumed bars with that on the reference bar. Note any wrinkling, staining or loss of strength of the film. By doing this, more information is obtained as to the suitability of the perfume.

Coloring soap bars.

Soap bars can be made in almost any color by adding dispersions or dyes. **It is important to use only colors which are approved for skin contact products in the country where the soap bars are to be sold.**

1. Adding colors to soaps

Some colors are supplied as liquids but most colors are supplied as powders. Very small amounts of powder dyes will give very intense colors and if powder dyes are added directly to melted soap it will be extremely difficult to judge the correct amount to add. Powder dyes are often slow to dissolve so “pockets” of dye powder can remain in the soap bar. When the bar is used the dye powder will dissolve in the wash water giving intense color which could stain skin and sanitary ware. To avoid problems, use the following procedure:

- First dissolve the dye powder completely in water. A 10% solution of the dye is usually best to work with (100 grams of dye in 1 litre of warm water) for batches of soap of 100 kilos or more. For smaller batches a 1% solution (10 grams of dye in 1 litre of warm water) is better. Make sure the dye is completely dissolved before using.
- As a guide, between 0.001% and 0.01% of a 10% dye solution (large batches **1ml to 10 ml of 10% dye solution per 100 kilos** of melted soap, small batches **1ml to 10 ml of 1% dye solution per 10 kilos** of melted soap) will give a good color ranging from pastel to intense. When the soap base is completely melted, add the dye solution slowly with continuous mixing. If perfume is to be added as well as color, then perfume and color should be added together. When the color is uniformly mixed the perfume will also be uniformly mixed.

2. Checking color stability.

Some colors are fugitive, that is they fade on exposure to light. Some colors may react chemically with compounds in perfumes. Because of this it is wise to check for color stability of the soap bar. To do this simply store one bar in the dark in a refrigerator, one bar in a room away from direct daylight and one bar near a north facing window. (Nearly all colors will fade in direct sunlight.)

Composite soap bars

It is possible to produce soap bars with an attractive striped appearance or to incorporate shapes with solid colors inside transparent bars. The process is carried out in stages as follows:

1. Striped bars.

- Prepare the first colored soap and carefully pour the correct amount into the mold to give the required thickness of stripe.
- Allow the soap to cool completely, and for best results chill it to below 50 degrees F in a refrigerator.
- Prepare the second colored soap and pour it carefully onto the first layer.
- Cool the soap and continue as before until the required number of layers has been poured.

2. Insert bars.

The inserts may be small plastic toys or shapes made from colored soap by cutting or molding.

- Prepare about one third of the amount of transparent soap needed for the bar.
- Pour the soap into the mold to give a layer of one third of the depth of the mold and allow to cool below the set point.
- Place the insert or inserts in the desired position(s) on the poured layer.
- Prepare the remaining two thirds of transparent soap and carefully pour into the mold until the insert is covered to the required depth.

NOTE:

The most likely reason for sweating and gelling would be humidity. All soaps contain glycerine (unless the glycerine is removed). When the glycerine (humectant) comes into contact with moisture, the water collects on the glycerine molecule. This is why the soap “sweats”. If enough moisture collects on the soap, it will begin to gel. If the soaps are sweating after the curing process is complete, try wrapping the soaps in PVC shrink wrap. If you are still experiencing this problem even during the curing process, try using a dehumidifier in the room where you are curing your soap.

HAPPY SOAPING!!!!