Candle Wax Additives

**Petrolatum** (snow white)
- Are mixtures of food grade white mineral oil and food grade wax refined to the highest degree of purity and stabilized with Vitamin E oxidation inhibitor.
- Petrolatums are odorless and tasteless, non-drying and rich in emollient properties. They are miscible with petroleum products, essential oils and other fatty materials.
- They are very stable and have a long shelf life.
- Add to your wax for container fill to make it as soft as you want. 15-20% will soften and increase melt pool. Melting point, ASTM D127 132°F (55.6°C).
- Consistency @77°F (25°C), ASTM D 937 – 180. Viscosity, ASTM D 445, cSt, at 100°C – 10.0 Color, Lovibond 0.8Y, 0.1R.

**Ultraviolet Light Absorbers (531-5411)**
- Stop discoloring from light. Adding UV absorber into your wax during the melting stage will reduce the rate of discoloration from sunlight as well as fluorescent light.
- Effectively increases the shelf life of your candle creation. These products work very well!
  #531 (yellow flake form) – add 1.5 tsp. to 2 Lbs wax. Best used for greens or blue tones.
  #5411 (white powder form) – add 10 tsp. to 2 Lbs wax. Best used for white or light shades; yellow, red, blue, etc.

INSTRUCTIONS FOR ADDING UV TO WAX:
1. Heat the desired quantity of wax to 105°C – 170°F minimum (molten wax).
2. Add the calculated UV quantity to this molten wax.
3. Mix thoroughly until the UV absorber dissolves.
4. Add the colorant, other additives, and fragrances to the total molten wax batch. Fragrances should be added last to minimize evaporation.
5. Mix thoroughly & ready to mold.

**Mineral Oil 90** are refined by ultra high pressure hydrotreatment to food grade white mineral oils with the highest degree of purity, and are stabilized with Vitamin E oxidation inhibitor.

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<td>Viscosity, cSt @ 40°C</td>
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<td>Saybolt Viscosity, SUS @ 100°F</td>
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<td>Saybolt Viscosity, SUS @ 210°F (98.9°C)</td>
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<tr>
<td>Color, Saybolt</td>
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Vibar Substitutes

Stearic Acid - organic triple pressed (flake form)
• Increases firmness, raises the melting point, aids mold release, impacts opacity, and helps prevent your candle creations from losing their shape in warmer weather.
• 5% to aid mold release.
• 10% - 30% to impact opacity.

AstorLite C – m.p.: 172°-181° F
• At the rate of 3-5% to container wax blends for the following benefits:
  - Opacity – brighter colors with less color added
  - More scent can be added
  - Less shrinkage
  - Better adhesion to containers

AstorLite PT – m.p.: 177°-188° F
• At the rate of 3-5% to pillar taper and votive blends for the following benefits:
  - Opacity – brighter intense color with less color added
  - Tapers will be stronger
  - Holds more scent
  - Even shrinkage – no hourglass shaped pillars
  - Excellent release from molds

Note: Because AstorLite C & PT have a higher m.p. than most wax used for candles, blend your wax & AstorLite to 190° F & mix thoroughly.
• When the blend of AstorLite and wax is evenly mixed, color and scent can be added
  • When AstorLite C or PT is used in a candle blend, the wax should be poured 20-25° F above the melt point of the paraffin used in the blend.
  • Containers and molds should be preheated to approximately 140° F before pouring candle.

Important Tips for Adding Additives…

• Bring wax up to 225° F m.p. for 5 minutes before adding additives, melt together, then reduce wax m.p. to pouring temperature, and agitate.

• Mix dyes and fragrances together, then add to wax.
Citric Acid — an organic carboxylic acid containing three carboxyl groups; it is a solid at room temperature, melts at 153°C, and decomposes at higher temperatures. It is responsible for the tart taste of various fruits in which it occurs, e.g., lemons, limes, oranges, etc. Citric acid is the most widely used organic acidulate and pH-control agent. It is used in the cosmetic industry as a preservative and control ingredient to adjust pH balance.
Universal Additive

Universal Additive is a specialty formulation of unique petroleum derived waxes modified with specific synthetic hydrocarbons to make it suitable for use as an additive for candles at 2-5% level to impart the following properties:

- Eliminate mottling and snow spots in jars, votives and pillar candles
- Greatly aids in holding high levels of fragrances into scented candles
- Contributes to an opaque, glossy finish to molded candles
- Upgrade less expensive, lower melting point waxes for use in votives and container candles

### PHYSICAL PROPERTIES

<table>
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<tr>
<th>TEST METHODS</th>
<th>ASTM METHOD</th>
<th>SPECIFICATIONS</th>
<th>MINIMUM</th>
<th>MAXIMUM</th>
<th>TYPICAL</th>
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<tr>
<td>Drop Melt Point ºF (ºC)</td>
<td>D127</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>184 (84.4)</td>
</tr>
<tr>
<td>Congealing Point ºF (ºC)</td>
<td>D938</td>
<td>175 (79.4)</td>
<td>182 (83.3)</td>
<td>179 (81.7)</td>
<td></td>
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<tr>
<td>Kinematic Viscosity, cSt @ 210ºF (98.9ºC)</td>
<td>D445</td>
<td>35.0</td>
<td>45.0</td>
<td>40.0</td>
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<tr>
<td>Saybolt Viscosity, SUS @ 210ºF (98.9ºC)</td>
<td>D2161</td>
<td>165</td>
<td>211</td>
<td>188</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>D1500</td>
<td>----</td>
<td>0.5</td>
<td>----</td>
<td>L0.5</td>
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<tr>
<td>Odor</td>
<td>D1833</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>1</td>
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<tr>
<td>Needle Penetration, dmm @ 77ºF (25ºC)</td>
<td>D1321</td>
<td>----</td>
<td>----</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Needle Penetration, dmm @ 100ºF (37.8ºC)</td>
<td>D1321</td>
<td>----</td>
<td>----</td>
<td>22</td>
<td></td>
</tr>
</tbody>
</table>

### Product Type
- **Candle Additive**

### Properties (Typical)
- **Congealing Point** (ASTM D938): 184ºF (84.4ºC)
- **Needle Penetration @77ºF (25ºC)** (ASTM D 1321): 6 dmm
- **Color** (ASTM D1500): L.5
- **Appearance** (solid): Opaque; hard consistency

### Description
- Specially wax blend designed to enhance candle properties

### Benefits
- Typically eliminates mottling and snow spots in container, votive and pillar candles
- Permits higher fragrance oil retention levels in scented candles
- Contributes to an opaque yet glossy finish to most molded candles
- Generally improves mold release
- Generally increases hardness of most waxes without greatly affecting the melt point
- Compatible with all paraffin wax

### General Guidelines
- Incorporate at a level 2% to 5% of total candle formulation. ½ tsp. to 1 tsp. per pound.
VITAMIN A PALMITATE  
CAS No. 79-81-2

**Description:** Light yellowish crystal or oily solution. It could be dissolved in ethanol, easily dissolved in ether, chloroform, acetone, and esters.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Retinol Palmitate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular Formula</td>
<td>C  H  O</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>524.86</td>
</tr>
<tr>
<td>Appearance</td>
<td>Light yellowish crystal or oil solution</td>
</tr>
<tr>
<td>Assay</td>
<td>≥ 1.7 million I.U./g</td>
</tr>
<tr>
<td>Identification</td>
<td>Positive</td>
</tr>
<tr>
<td>Absorbance Ratios</td>
<td>Conforms to USP</td>
</tr>
<tr>
<td>Acid Value</td>
<td>≤ 2.0</td>
</tr>
<tr>
<td>Peroxides</td>
<td>Conforms to USP</td>
</tr>
<tr>
<td>Packaging</td>
<td>Packed in 5 kg. aluminum cans or on customer’s request. The producer is filled under nitrogen</td>
</tr>
</tbody>
</table>

**Stability**  
Product can be stored for up to 6 months in the unopened original container at temperatures of up to 20ºC

**Storage**  
As Vitamin A Palmitate is sensitive to atmospheric oxygen, light and heat, it should be stored in the unopened original container in a cool dark place. It is recommended to flush opened containers with an inert gas and use up their contents as quickly as possible.

**Note**  
1 I.U. = 0.300 g vitamin A alcohol  
= 0.550 g vitamin A palmitate
RECOMMENDED USAGE FOR FRAGRANCES

Candle-makers are using fragrances at levels between 1% and 10%. Most, however, are using **4-6% fragrance to make a highly scented candle**. More fragrance will create a more strongly scented candle, and less fragrance will create a more lightly scented candle.

You may measure by weight, using a scale, or by volume, using measuring cups or spoons. It is important to choose a method and consistently use that method since slightly different results may be obtained if you measure by weight one time and by volume the next time.

In order to calculate how much fragrance to use, multiply the batch size by the percentage of fragrance you wish to use.

**Total batch size x percentage of fragrance = amount of fragrance to use**

For example, if you want to use 5% fragrance in your 10 lb. batch, you will need to multiply 10 lbs. by 5% (or by 0.05 if you do not use the percent key).

10 lbs x 5% = 0.5 lbs or 8 oz.

1 ounce of fragrance per 1 pound of wax = 6% fragrance
1/2 ounce of fragrance per 1 pound of wax = 3% fragrance

Too much fragrance without the proper additives can make your candles oily. When using more than 3% or 4% fragrance, you will need to use additives like Stearic acid, vybar, and or microcrystalline wax to absorb the excess oil caused by the fragrance. Mottling is caused by increased levels of oil or fragrance in the wax, so if you do not like that look, it is very important to use the above additives. If you like the mottled look and you want to use more than 3-4% fragrance, use a very small amount (1% or less) of Stearic acid. Experiment with it until you get the preferred results.
RECOMMENDED USAGE FOR LIQUID DYES

For a medium shade of a color (like red, blue, yellow, etc.), you will need to use about 0.05% dye. This means using 1 pound of liquid dye for 2000 pounds of wax. On a smaller scale, this is equivalent to using about 7 or 8 drops of color per pound of wax.

1 ounce = 28 grams
1 pound = 454 grams = 16 ounces
1 Tablespoon = 15 grams = about one half ounce
1 teaspoon = 5 grams = about one fifth of an ounce
1/2 teaspoon = about 2 grams
1/4 teaspoon = about 1 gram
one drop = about 0.03 gram
1 gram is about 33 drops

You may measure by weight, using a scale, or by volume, using measuring cups or spoons. It is important to choose a method and consistently use that method since you may get slightly different results if you alternate between the two.

Here is how you do your percentage calculations:

For a medium shade:
Total batch size x 0.05% = amount of liquid dye to use

For example, if you want to color 10 pounds of wax red, you will need to multiply 10 lbs. x 0.05% = 0.005 lb. (when multiplying by a percentage, be sure to either use the percent key after 0.05 or add two decimal places in front of 0.05 so that you multiply by 0.0005). To convert to ounces, multiply 0.005 lb. by 16 since there are 16 ounces in 1 pound: 0.005 lb. x 16 = 0.08 ounce. To convert to grams, multiply by 454, which is the number of grams per pound: 0.005 lb. x 454 = 2.27 grams. Since you need to use 2.27 grams of dye to color your 10 pound batch, you should use ½ teaspoon plus about 9 drops. If your batch is small, or if the dye amount is small, it is often easier to convert to grams so that you may use measuring spoons or drops.

For darker shades like burgundy or navy, try using 0.1% dye. This means that you should multiply your batch size by 0.1% (being sure to use the percent key) or just multiply batch size by 0.001.

For pale shades like peach or pink, you will want to use about 0.005%. For a vanilla or ivory shade, you may want to use 0.001%.

Black may be achieved by using 0.2% dye in the wax. Using less than 0.2% will give you different shades of gray.
RECOMMENDED USAGE FOR POWDERED DYSES

To create a medium shade like red or blue, you will need to use only about 0.025% dye in wax. For a dark shade, use about 0.05% (or more, depending on how dark the shade needs to be). Typically, for a medium shade, one pound of dye will color about 4,000 pounds of wax. For pale shades, use about 0.01% or less (use very small amounts to make an extremely pale shade such as ivory or vanilla). Here is how you do your percentage calculations:

For a medium shade:
Total batch size x 0.025% = amount of powdered dye to use

For example, if you want to color 10 pounds of wax red, you will need to multiply 10 lbs. x 0.025% = 0.0025 lb. (when multiplying by a percentage, be sure to either use the percent key after 0.025 or add two decimal places in front of 0.025 so that you multiply by 0.00025). To convert to ounces, multiply 0.0025 lb. by 16 since there are 16 ounces in 1 pound: 0.0025 lb. x 16 = 0.04 ounce. To convert to grams, multiply by 454, which is the number of grams per pound: 0.0025 lb. x 454 = 1.135 grams. Since you need to use 1.135 grams of dye to color your 10 pound batch, you should use 1/4 teaspoon. If your batch is small, or if the dye amount is small, it is often easier to convert to grams so that you may use measuring spoons.

Many people find that powdered dyes can be challenging to dissolve into wax. Sometimes, it is helpful to dissolve the dye into Stearic acid since Stearic acid seems to be a better solubilizer than wax for powdered dyes. However, other candlemakers dissolve the powdered dye into their wax. A few candlemakers even filter their wax to keep undissolved dye particles from appearing in their candles.

The primary drawback to using powdered dyes is that they are difficult to dissolve, and sometimes can leave undissolved particles of color in the bottom of the mixing tank and thus in the bottom (or top, if molded candles are being made) of candles. However, there are a few extremely vivid colors that can really only be achieved using powdered dyes.
RECOMMENDED USAGE FOR HAND & EQUIPMENT CLEANER

This product will safely and effectively remove dye residue from skin and non-porous work surfaces such as stainless steel, glass, Formica, tile, etc. It will not work very well to remove dye from clothing or wood surfaces. Hand & Equipment Cleaner is made from components used in body lotions and in topical applications, so it is safe for skin use. However, we do recommend that you wash your hands after every application.

To use, simply put some of the product on a paper towel and wipe down the area containing the dye. You may use as much as you like, however, it is better to use a small amount and wipe with a paper towel until all colored residue is removed. This cleaner may also be used as a mold release or to clean existing wax and residue from molds.

PLEASE NOTE: This product has a high freezing point. At temperatures around 55 degrees Fahrenheit it will solidify. Simply remove container to a warmer room to let it thaw for several days. Or you may put the container into another container holding warm water to let it thaw more quickly. *Thawing and freezing will not in any way harm the product!*
RECOMMENDED USAGE FOR WHITENER

This is a flake/block product. It is recommended that it is put into the melted wax at 2-5% - at 5% you’ll get better results. It should be used with a sheer or nearly colorless fragrance – using a yellow or dark fragrance will not produce as white a result as using a sheer fragrance. It is easily soluble into the wax. Add the whitener to the melted wax. It is highly recommended that UV be added also.

FYI:
Even customers making uncolored candles can benefit from using UV because it will help slow down the darkening of fragrances in the wax. Fragrance, especially when exposed to heat or light, can darken over time, and candles that are uncolored are still exposed to light in a store! The portion of the candle that’s exposed to light will darken more quickly than the unexposed portion. Therefore, using UV can protect the fragrance from the light.

Make sure to test burn the candles before you send them to your customers. It’s a very new product…nothing else like it is on the market.