Unusual Odors and Colors in Pumped Breastmilk

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Some women find that their expressed (pumped) milk has a sour, soapy or rancid smell. The odor may become apparent after your milk has been in the refrigerator for a few days, or when you defrost your frozen milk. This may happen for several reasons.

Many foods that humans eat, such as eggs, cheese, and fish, have an unpleasant odor that does not affect taste.

If your milk smells **"soapy"**, the cause is probably **lipase**, an enzyme in the milk that helps break down the fat, so it is more digestible. Once the milk is expressed, lipase may cause a rapid break down of fats in the expressed milk, causing a soapy smell and taste. If your milk smells **"sour" or "rancid"** this can be from **oxidation**. These changes may occur shortly after the milk is expressed, or it may occur after the expressed milk is frozen and then defrosted. Some babies will reject the milk due to taste/smell; however the milk is not harmful, and it is fine for your baby to eat.

Make sure that you follow proper milk storage guidelines. See our information on *Collecting and Storing Pumped Milk* for more details.

If your milk smells "sour", and baby will not eat it:

- Try decreasing your intake of polyunsaturated fatty acids (PUFAs), such as Canola oil, Fish Oil, Grapeseed Oil, Corn Oil, Soybean Oil, Generic Vegetable Oil, Walnuts Oil, Cottonseed Oil, Sesame Oil, Peanut Oil, Margarine, and Flaxseed Oil.
- Drink bottled water, rather than tap water, when possible, to avoid oxidants such as copper or iron in the water.
- Strive for a diet rich in antioxidants, including berries, nuts, dark green vegetables, sweet potatoes, beans, whole grains, and fish. You could also try taking a Vitamin E +/- Vitamin C supplement.

If you have frozen milk that your child refuses:

- Try thawing milk in the refrigerator rather than in warm water or room temperature.
- Try mixing the "rejected" frozen milk with fresh milk. Start with half frozen, half fresh and adjust the amount of frozen milk up or down depending on your child's preferences.
- Consider donating your frozen milk to a milk bank. Lipase and other taste issues are not usually a problem for milk banks. See our information on *Milk Donation, Outreach Centers, and Milk Banks* for additional guidance.

It is normal for expressed milk to separate when it is stored in the refrigerator. This is not a problem. Swirling the milk gently will disperse the fat globules. Separated milk does not smell bad.

Before stockpiling large amounts of frozen milk, freeze and defrost some of your pumped milk to test for any unusual smells. This will keep you from wasting large amounts of frozen milk as there is nothing you can do to reverse the changes once they occur. Some women with "soapy" smell to their frozen milk have had success preventing this rapid break down of fats by the lipase, (or deactivating lipase) by heating the milk:

1. Place the milk in a clean pan over low heat on the stove (or other heating device, but not a microwave).
2. Heat the milk just to the point that it is bubbling around the edges but not boiling, as boiling will reduce or destroy valuable immunologic properties.

3. Place the pan in a larger bowl filled with ice water (use plenty of ice) to cool it quickly.
4. Store the milk in rigid polypropylene plastic or Pyrex containers, either in the refrigerator if it is to be used within a day or two, or in the deep freezer if storage will be longer.

Human milk that is pumped may also vary in color, depending on what foods the lactating parent has eaten, vitamins taken, time of day the milk was pumped, or even whether the milk was frozen or not.

- It is normal for human milk to be white, , clear or have a blue hue to it.
- Diets high in carotene (yams, squash, carrots) will lead to high carotene in milk, which can cause milk to be more yellow or orange.
- Drinking orange Gatorade drink has resulted in orange breastmilk.
- Greenish milk has been linked to taking minocycline (an antibiotic) or spirulina (an algea) and receiving propofol (an anesthetic) during a procedure has made breastmilk blue-green.
- Pinkish milk may indicate blood in the milk, which could occur with or without a cracked nipple. This milk is not harmful to babies. A visit with an IBCLC can help with any latching or breast concerns.
- Another cause of pink milk is Serratia marsescens, a bacteria that commonly lives in breastmilk. At room temperature it produces a reddish-pink pigment that can then be seen in the milk. This discoloration is most commonly seen in bottles, towels, and pumps left out overnight with milk residue in or on them. It is very important to sterilize pump parts and bottles that have been in contact with milk that is pink due to this bacteria, to discourage overgrowth. If the baby eating this milk is premature their provider needs to be informed, as they may want to culture the milk and treat the mother with antibiotics.
- Brown milk may be noted in the first days after birth, when the ducts and milk making cells in your breasts grow and stretch. This is known as “rusty pipe syndrome”. This usually clears up after a few days as more milk flows through your breasts, and it is not harmful to feed your baby this milk.
- Rifampin (an old antibiotic) can result in yellow, orange, red or brown milk.
- Taking iron supplements can make the milk black.

Reviewed: April 2025