

Lipase Action in Expressed Breast Milk

Some women find that their expressed (pumped) milk has a **sour or soapy or rancid smell**, either shortly after they pump, or when their milk is defrosted.

This is thought to occur when a woman has a **high amount of lipase** in her milk. Lipase is an enzyme that keeps the fat in the milk well-mixed and also keeps the fat globules small. In addition, lipase breaks down the fat so it is more easily digested by baby.

A high amount of lipase may cause a rapid break down of the fats in the expressed milk, causing a rancid or sour or soapy smell and taste. Generally, babies will reject the milk. However, the milk is not harmful and it is fine for your baby.

The break down may occur shortly after the milk is expressed (as soon as it cools slightly from body temperature), or it may occur after the expressed milk is frozen, and then defrosted.

Before stockpiling large amounts of frozen milk, it is recommended that you defrost some milk to test for the lipase action in your milk. This will keep you from wasting large amounts of stored milk, as there is nothing that can be done to reverse the breakdown and salvage the milk once it occurs.

If you should notice a sour smell to your milk, it is recommended that you heat your freshly pumped milk in a saucepan on the stove just to the scalding point. This is when small bubbles form around the outside of the pan (180 F or 82 C). Avoid a full, rolling boil of the milk, as this will damage some of the beneficial components. Quickly cool the milk and store it in the refrigerator or freezer. Scalding stops the enzyme action and the milk can be frozen and defrosted without concerns.

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

If you notice that your milk does not smell fresh when you remove it from the refrigerator or freezer, make sure that you are following storage guidelines:

1. Preferably use glass or hard plastic food grade containers or plastic bags designed for storage of milk. Do not use bottle liners.
2. Make sure the container is sealed well and air proof.
3. Store in the back of the refrigerator or freezer, not on the door.
4. Avoid putting the milk against the wall of a self-defrosting freezer.
5. The temperature in the freezer should be cold enough to keep ice cream hard.

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