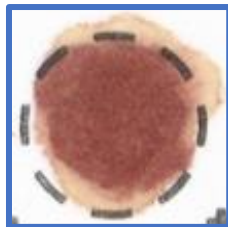


## Unsatisfactory Specimen: Serum Separation (Serum Rings)

### **Background:**

- Serum can separate from red blood cells due to factors such as:
  - Excessive squeezing of heel
  - Drying card vertically
  - Contaminants on filter paper
  - Use of capillary tubes for collection
  - Low hematocrit level
    - If this is a known factor, please indicate in the Notes section on the NBS card.
- Serum separation may cause test results to be inaccurate. A repeat specimen will be required. This can lead to critical delays in identifying serious health issues for the infant.



Serum ring

### **Tips to Avoid Serum Separation Sample:**

- Use heel warmer or warm damp cloth prior to sample collection to increase blood flow.
- Use proper lancet size (standardized device making 1 mm deep by 2.5 mm long incision) and wipe away first drop of blood.
- Do not milk or excessively squeeze the heel.
- Avoid using capillary tubes for specimen collection. If medically necessary, avoid devices containing heparin or EDTA.
- Dry specimen card at least 3 hours in a horizontal position and ensure it is completely dry before packaging.
- Do not allow filter paper to contact alcohol, hand lotion, or other contaminants.

### **Serum Separation Images (front and back of the same card):**



(Front of card: A light halo of serum can be seen around the spots.)



(Back of card: A light halo of serum can be seen around the spots.)

### **Satisfactory Specimen Image:**



Both the front and back of the specimen card should look like the image above. Note the circles are filled and the even saturation of a single blood drop applied to each circle.