



## BLOOD COMPONENTS IN TRANSFUSION MEDICINE

The following are classified as blood components prepared in the blood transfusion center (whole blood, red cells, platelets, fresh frozen plasma, and cryoprecipitate).

### 1. **Whole blood**

Whole blood contains red cells, white cells, and platelets (~45% of volume) suspended in blood plasma (~55% of volume).

- Color: Red
- Shelf Life: 21/35 days
- Storage Conditions: Refrigerated
- Key Uses: Trauma, Surgery



### 2. **Packed Red blood cells (RBCs), or erythrocytes**

Packed red blood cells give blood its distinctive color. Produced in our bone marrow. Red blood cells components are prepared from whole blood by removing the plasma (the liquid portion of the blood).

- Color: Red
- Shelf Life: Up to 42 days (depending on the type of anticoagulant used)
- Storage Conditions: Refrigerated (frozen for 10 years or more)
- Key Uses: Trauma, Surgery, Anemia, Any blood loss, Blood disorders, such as sickle cell.



Separation of plasma and packed red blood cells after whole blood centrifugation.

### 3. **Platelets, or thrombocytes**

Platelets are made in our bone marrow, which are small, colorless cell fragments in our blood whose main function is to stick to the lining of blood vessels and help stop or prevent bleeding. Platelets can be prepared by using a centrifuge to separate the platelet-rich plasma from donated whole blood.

- Color: Cloudy yellow color
- Shelf Life: 5 days
- Storage Conditions: Room temperature with constant agitation to prevent clumping
- Key Uses: Cancer treatments, Organ transplants, Surgery



### 4. **Plasma**

Plasma is the liquid portion of blood; serves several important functions in our bodies, despite being about 92% water. Plasma is obtained by separating the liquid portion of blood from the cells. It is then stored frozen for up to one year and thawed when needed.

- Color: Yellowish
- Shelf Life: 1 year
- Storage Conditions: Frozen
- Key Uses: Burn patients, Shock, Bleeding disorders

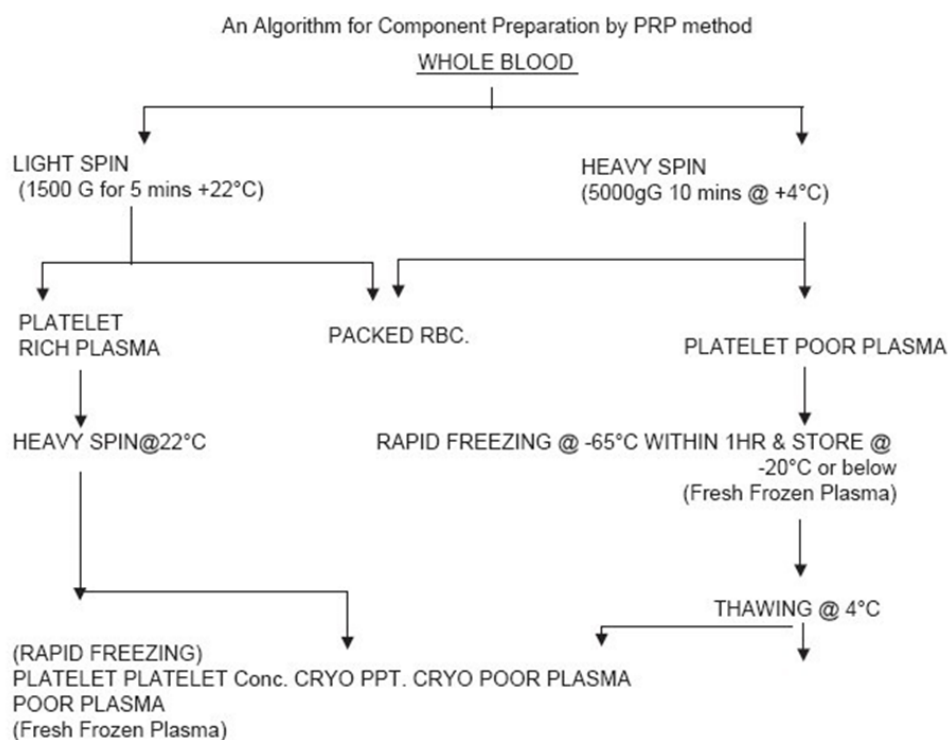
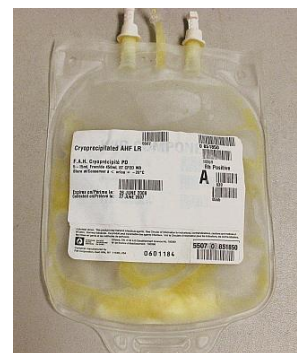




## 5. Cryoprecipitate Antihemophilic Factor (Cryo)

Cryoprecipitate Antihemophilic Factor is a portion of plasma rich in clotting factors, including Factor VIII and fibrinogen. These clotting factors reduce blood loss by helping to slow or stop bleeding due to illness or injury. Cryo is prepared by freezing and then slowly thawing frozen plasma. The precipitate is collected and then pooled with contributions from other donors to reach a sufficient volume for transfusion. It can be stored, frozen, for up to a year.

- Color: White
- Shelf Life: 1 year
- Storage Conditions: Frozen
- Key Uses: Hemophilia, Von Willebrand disease (most common hereditary coagulation abnormality), Rich source of Fibrinogen



### Reference

- <https://www.transfusionguidelines.org/transfusion-handbook/3-providing-safe-blood/3-3-blood-products>
- <https://veteriankey.com/blood-component-processing-and-storage/#c17-fig-anc-0012>
- University of Medical Technology: Blood Safety practices Handbook