



HEALTH HOLDING

HAFER ALBATIN HEALTH  
CLUSTER  
MATERNITY AND  
CHILDREN HOSPITAL

<b>Department:</b>	Laboratory and Blood Bank		
<b>Document:</b>	Internal Policy and Procedure		
<b>Title:</b>	Reading and Grading Agglutination Test Result		
<b>Applies To:</b>	All Blood Bank Staff		
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## 1. PURPOSE:

- 1.1 To ensure the reliability and reproducibility of the agglutination test results.

## 2. DEFINITONS:

- 2.1 **Rouleaux;** is the classic appearance of coin stacking of RBCs.
- 2.2 **Mixed field;** a pattern of small compact agglutinates in a background of numerous free red cells. Usually read microscopically.

## 3. POLICY:

- 3.1 Standardization of agglutination ensures the reliability and reproducibility of the agglutination test results.

## 4. PROCEDURE:

### 4.1 Macroscopic reading:

- 4.1.1 Gently shake the tube and disrupt the red cell button in the tube.
- 4.1.2 Observe the way that cells are dispersed from the red cell button.
- 4.1.3 Record reactivity by comparing the agglutinate and this reactivity should be assessed when the RBCS have been completely resuspended from the button.
- 4.1.4 It is difficult to distinguish reactions weaker than one (+) from the normal slight granular appearance of unagglutinated red cells in suspension. So, microscopic reading is recommended in these cases.
- 4.1.5 Serum overlying the centrifuged cell button must be inspected for hemolysis.
- 4.1.6 Both hemolysis and/or agglutination are considered as clinically significant reaction.
- 4.1.7 The character of agglutination should be noted and recorded whether loose, mixed-field or retractile.

### 4.2 Microscopic reading:

- 4.2.1 It is important not to overload the suspension with cells, and the method described below achieves this.
- 4.2.2 Lift the tube carefully from its rack without disturbing the button of sediment cells.
- 4.2.3 Holding the tube vertically, introduce a Pasteur pipette, with its tip cut at 90°, carefully draw up a column of supernatant about 1cm in length and then, without introducing an air bubble. draw up a 1-2 mm column of red cells on to a slide over an area of about 2 x 1 cm.

#### 4.3 Grading the agglutination:

4.3.1	Symbol	Agglutination score	Description
	4+ or C (complete)	12	One solid agglutinate; cell button remains in one clump, macroscopically visible with clear background.
	3+	10	Several large agglutinates; cell button dislodges into several large clumps macroscopically visible with clear background.
	2+	8	Medium-size agglutinates, relatively clear background; Cell button dislodges into many medium-sized clumps, macroscopically visible with slightly cloudy background.
	1+	5	Small agglutinates, turbid background; cell button dislodges into finely granular clumps, macroscopically visible with red cloudy background.
	(+) or w (weak or trace)	3	Cell button dislodges into fine granules, only visible microscopically.
	-	0	No agglutination (Negative result); all cells free and evenly distributed.

4.3.2 Unless otherwise stated, an unequivocal manual tube reaction is defined as a grade 2 or greater.

#### 4.4 Other types of reaction:

4.4.1	Symbol	Description
	Mixed field (MF)	Mixtures of agglutinated and unagglutinated red cells; a pattern of small compact agglutinates in a background of numerous free red cells. Usually read microscopically .
	Rouleaux (R)	Rouleaux: Red cells appear microscopically as a stack of coins.
	H	Complete hemolysis, no intact red cells.
	PH	Partial hemolysis with intact red cells present .

### 5. MATERIALS AND EQUIPMENT:

#### 5.1 Forms and Records:

N/A

#### 5.2 Materials and equipment:

- 5.2.1 Glass slides
- 5.2.2 Tubes
- 5.2.3 Pasteur pipettes
- 5.2.4 Microscope

### 6. RESPONSIBILITIES:

- 6.1 Blood bank staff in the pre-transfusion areas .

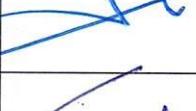
### 7. APPENDICES:

N/A

## 8. REFERENCES:

- 8.1 The Unified Practical Procedure Manual for Blood Banks in The Arab Countries, 1434-2013.
- 8.2 The Standard Policy for Blood Banks in The Kingdom of Saudi Arabia, 1<sup>st</sup> edition, 1435-2014.
- 8.3 National Standards for Clinical laboratories and Blood Banks, 1<sup>st</sup> edition, 2015.
- 8.4 AABB Technical manual, 18th edition, 2014.
- 8.5 AABB Standards for Blood Banks and Transfusion Services, 30<sup>th</sup> edition, 2016.
- 8.6 Mollison's Blood Transfusion in Clinical Medicine; 12th edition, 2014.
- 8.7 Modern Blood Banking & Transfusion Practices, 6th edition, 2012.

## 9. APPROVALS:

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