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**Lab Dept:** Hematology

**Test Name:** OSMOTIC FRAGILITY

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***General Information***

**Lab Order Codes:** OSFM

**Synonyms:** RBC Fragility; Erythrocyte Fragility; Incubated Osmotic Fragility

**CPT Codes:** 85557 – Osmotic fragility, RBC; incubated

**Test Includes:** Percent hemolysis of red blood cells for unincubated specimens placed in 0.50 g/dL concentration of NaCl and incubated specimens (37°C for 24 hours) when tested in NaCl concentrations of 0.60, 0.65 and 0.75 g/dL.

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***Logistics***

**Test Indications:** Useful for suspected hereditary spherocytic hemolytic anemia.

**Lab Testing Sections:** Hematology - Sendouts

**Referred to:** Mayo Medical Laboratories (MML Test: 9064/FRAG)

**Phone Numbers:** MIN Lab: 612-813-6280

STP Lab: 651-220-6550

**Test Availability:** Daily, 24 hours

**Turnaround Time:** 2 – 5 days (performed Monday – Saturday, reported Monday - Friday)

**Special Instructions:** Indicate patient's date of birth on request form. Specimen must arrive at reference lab within 96 hours of draw.

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***Specimen***

**Specimen Type:** Whole blood

**Container:** Lavender top (EDTA) tube

**Draw Volume:** 5 mL (Minimum: 2 mL) blood

**Processed Volume:** Same as Draw Volume

**Collection:** A trauma-free blood collection required

**Special Processing:** Send 5 mL EDTA blood refrigerated. Specimen should remain in original collection container. **Do not** transfer blood to another tube. **Do not** centrifuge.

**Also**, send a 5 mL fresh EDTA whole blood specimen from a normal, untreated person at the same time, refrigerate and Label as **normal control**, indicate sex of the person from whom the control was drawn on the specimen label.

**Do Not** freeze.

**Patient Preparation:** None

**Sample Rejection:** Clotted; frozen; mislabeled or unlabeled specimen; gross hemolysis

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***Interpretive***

**Reference Range:**

<b>0.50 g/dL NaCl (unincubated)</b>	Males: 0.0 – 47.8% hemolysis
	Females: 0.0 – 31.1% hemolysis
<b>0.60 g/dL NaCl (incubated)</b>	Males: 18.7 – 67.4% hemolysis
	Females: 10.9 – 65.5% hemolysis
<b>0.65 g/dL NaCl (incubated)</b>	Males: 4.4 – 36.6% hemolysis
	Females: 0.2 – 39.3% hemolysis
<b>0.75 g/dL NaCl (incubated)</b>	Males: 0.8 – 9.1% hemolysis
	Females: 0.0 – 10.9% hemolysis
<b>Interpretation:</b> Increased lysis in 3 or more concentrations of sodium chloride indicates red cell fragility.	

**Critical Values:** None

**Limitations:** Infrequently, other hemolytic disorders may be associated with positive results, as in patients with congenital nonspherocytic hemolytic anemia due to G-6-PD or pyruvate kinase deficiency.

Patients with an immunohemolytic anemia, or who have recently received a blood transfusion may also have increased RBC lysis.

**Methodology:** Osmotic Lysis

**Contraindications:** Recent transfusion

**References:**

[Mayo Medical Laboratory Web Page](#) August 2013

**Updates:**

11/6/2006: Updated reference ranges.