Manual
Procedure

MEDICHEM MIDDLE EAST
Clinical Chemistry Reagents
Liquid Stable Reagents

Cat. No. 11490	R1	1	x	50 ml
For 50 tests	R2	1	x	Powder
Cat. No. 11491	R1	2	x	50 ml
For 100 tests	R2	1	x	Powder

Total Iron Binding Capacity (TIBC)

Powder Reagent

Test principle
Total iron binding capacity (TIBC) is evaluated after saturating the transferring by an iron solution, and absorbing excess iron by the use of magnesium hydroxide carbonate. After centrifugation, iron is measured in the supernatant.

Concentrations in the test

Iron saturating solution R1		
Iron ions	0.1	mmol/L
Precipitating powder R2		
Magnesium hydroxide carbonate	155	mmol/L

Stability of reagent
Iron saturating solution R1: *liquid, ready to use.*

Precipitating powder R2*: ready to use***.**

All reagents are stable up to expiry date given on the label when stored at + 2 ➔ + 25 °C.

Note: Don't use if moisture has penetrated into reagent R2 and caking has occurred.

Specimen collection and handling
1. Fresh, non-hemolyzed serum is the specimen of choice.
2. Heparinized plasma could only be used, other anticoagulants should not be used.
3. Serum should be separated as soon as possible.
4. Serum iron is reported to be stable for 4 days at 20 - 25 °C, and 7 days at 2 - 8 °C.

Calibrator / Standard
MediCal U Cat. No. 15011
Iron STD. Cat. No. 16131

Quality control
Meditrol N Cat. No. 15171
Meditrol P Cat. No. 15181

Procedure
Saturation of transferring:

	Sample
Sample	500 µl
Iron Saturating Solution R1	1000 µl
Vortex for 30 sec. and incubate for 5 - 30 min. at 20 - 25 °C.	
Precipitating Powder R2	≈ 75 mg (Spoonful)
Incubate for 30 min. at 20 - 25 °C, agitating every 5 min. during this period. Centrifuge at 3000 r.p.m. for 10 min. and use the supernatant for iron determination. The supernatant can be stored for up to 1 hour.	

TIBC determination:
Treat the supernatant obtained above as a serum sample and use one of the following kits:
Cat. No. 12470, 12471, 12472, 12480, 12481, 12482.
Multiply the results by 3 to correct for the dilution.

Calculation

$$TIBC = \frac{A_{Supernatant}}{A_{Cal./STD.}} \times Conc._{Cal./STD.} \times 3 \text{ (Dilution Factor)}$$

UIBC = TIBC – Serum Iron

$$\mu mol/L \underset{0.179 \times}{\overset{\times 5.58}{\rightleftarrows}} \mu g/dl$$

Linearity
Up to 500 µg/dl (89.5 µmol/L).
If the result exceeds 500 µg/dl, repeat the test using diluted sample (1+1) with sodium chloride solution (0.9 %) and multiply the result by 2.

Interferences
1. Certain drugs and substances are known to influence circulating iron levels.
2. To make tubes, pipettes, etc. iron free they must be washed with diluted (1+2) hydrochloric or nitric acid followed by several rinsings with iron free deionized or distilled water.
3. Hemolysis interferes with the test.

Precautions
1. Reagent R1 is toxic, don't pipette by mouth, avoid all contacts.
2. Use only iron free tubes and cuvettes. Avoid any contamination by the use of clean laboratory material or use disposables.

Reference range

women	250 - 350	µg/dl
men	300 - 400	µg/dl

Conversion factor:
1 mg/dl transferring corresponds approx.
1.40 µg/dl (0.251 µmol/L) Iron.

References

1. Young, DS., Effects of drugs on clinical laboratory tests, fifth edition 2000, AACC Press, Washington, D.C.
2. Henery, J, B. Clinical diagnosis and management by laboratory methods Philadelphia. W.B. Saunders p .1434,(1984).