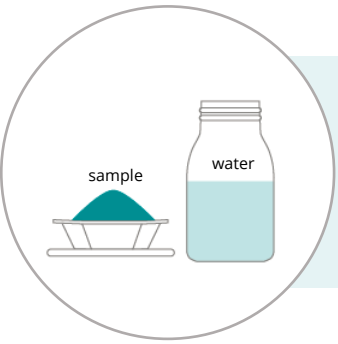
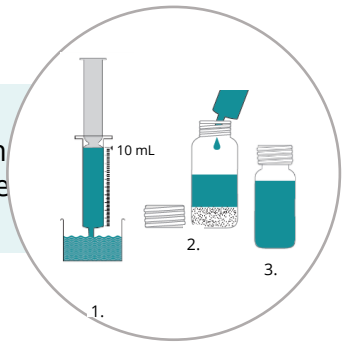
iCheck Iron

How to use iCheck Iron Test Kit to Measure Iron in Food



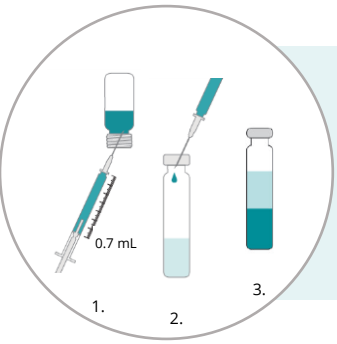
Step 1. Sample Preparation

- Dilute your sample with distilled or bottled water. The expected concentration in your diluted sample should be in the middle of iCheck Iron linear range [1.5 to 12 mg/L].
- Control your iCheck Iron device following the instructions in the iCheck Iron User Manual provided with your iCheck case.



Step 2. Solubilize the ADDITIVE

- Add 10 mL of distilled or bottled water into the dry ADDITIVE vial with screw on
  Use the big green 10 mL syringe provided in your test kit box (without a needle
- Shake the vial until the ADDITIVE is completely solubilized.

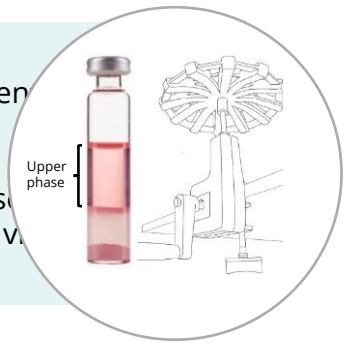


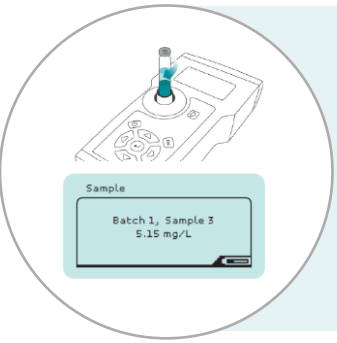
Step 3. Activate the Reagent vial with ADDITIVE

- Use small 1 mL syringe and thin green needle provided in your test kit box.
- Through red rubber septum take up 0.7 mL of solubilized ADDITIVE while holding the vial upside down. Make sure there are no air-bubbles trapped inside the syringe.
- Inject 0.7 mL ADDITIVE into a reagent vial to activate it. Shake the vial for 10 seconds. Two clear phases are observed in the vial after adding the additive.

Step 4. Reaction and Phase Separation

- Inject 0.4 mL of your diluted and homogenized sample into the activated reagen
  Shake the vial vigorously for 10 seconds.
- Incubate the vial for 1 hour at 20-30ºC. Shake the vial every 15 min.
- At the end of the 1 hour incubation time let the vial stand still until a clear phas
  separation appears. If the phases do not separate on their own centrifuge the v
  manual hand centrifuge for 2-3 minutes.





Step 5: Measurement and calculation

- The vial is ready to be measured only if there is clear upper phase visible! Make sure that there are no particles stuck on the inside or outside of the vial in the middle.
- Measure the vial in your iCheck Iron following the instructions in your iCheck Iron User Manual.
- Multiply your result with your dilution factor:
  - Dilution Factor (DF) = Total Diluted Sample Volume [mL] / Sample [g]
  - Iron in the sample [mg/kg] = iCheck Iron Result [mg/L] x DF

iCheck Iron
Calculations

- iCheck Iron measurement range is 1.5 – 12 mg/L. If your sample is above this range you need to dilute it.
- Examples with wheat/maize flour:

Expected Total Iron Concentration in Flour	Recommended Dilution	Sample Weight	Final Volume of Diluted Sample	Expected Concentration of Iron in Diluted Sample
3 – 10 mg/kg	1 : 2	50 grams	100 mL	1.5 - 5 mg/L
10 – 20 mg/kg	1 : 5	20 grams	100 mL	2 – 4 mg/L
20 – 60 mg/kg	1 : 10	10 grams	100 mL	2 – 6 mg/L
60 – 120 mg/kg	1 : 20	5 grams	100 mL	3 – 6 mg/L

- Dilution Factor (DF) = Total Diluted Sample Volume [mL] / Sample [g]
- Measured Iron [mg/kg] = iCheck Iron Result [mg/L] x DF

Attention

- When measuring intrinsic iron in samples fortified with ferrous fumarate (such as wheat flour or fortified rice kernels), it is recommended that the sample is diluted in 0.2M – 0.4M HCl.
- The solubilized additive can be stored in the refrigerator at 4°C and is stable for 6 weeks. The liquid might turn yellowish, this does not interfere with the test kit performance.
- Store reagent vials upright at room temperature (20-30°C)

For the information on the accuracy of the result with iCheck please refer to the Performance Guide.