

File No. 1-90/FSSAI/SP (MS&A)/2009
Food Safety and Standards Authority of India
(A statutory Authority established under the Food Safety and Standards Act, 2006)
(Quality Assurance Division)
FDA Bhawan, Kotla Road, New Delhi - 110002

Dated, the 6th April, 2021

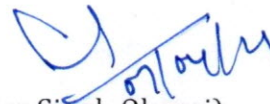
ORDER

Subject: Method for Determination of Iron Filings in Tea - reg.

The Food Authority has approved the method for determination of iron filings in tea which is Annexed.

2. The food testing laboratories are hereby requested to use this method, with immediate effect.
3. Any issue related to the method may be forwarded to the Scientific Panel on Methods of Sampling & Analysis for its consideration at email: sp-sampling@fssai.gov.in

Encl: Method


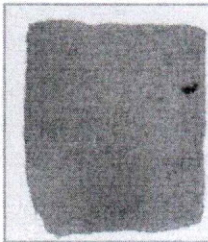
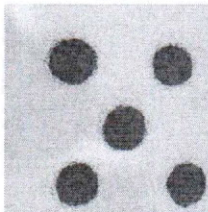
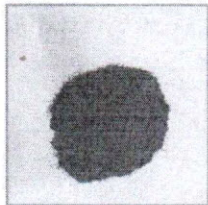

(Harinder Singh Oberoi)
Advisor (QA)

To:

1. All FSSAI Notified Laboratories
2. All State Food Testing Laboratories

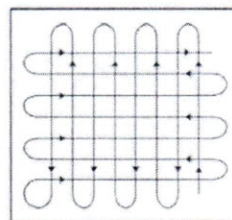
Copy to:

1. Executive Director (Regulatory Compliance), FSSAI
2. Advisor (S&S), FSSAI
3. Head (Regulations), FSSAI

 Determination of Iron Filings in Tea	
Method No.	01 Revision No. & Date 07.04.2021
Scope	To lay down a procedure for the determination of Iron filings in tea. Method can be applied to all tea samples for Iron filings.
Caution	None
Principle	Iron filings or Iron particles may appear during the manufacture of tea and affects its quality. This method follows the gravimetric estimation of iron particles using a magnet.
Apparatus/ Instruments	Magnet (Strength: ~ 1000 gauss)
Materials and Reagents	Analytical balance, Magnet, white sheet.
Preparation of Reagents	Not Applicable
Method of analysis	<p>❖ Step-1: Take whole unit pack (250 g) sample and homogenize/ mix properly and spread the mixed sample in thin layer (~ 5 mm) on white sheet.</p>  <p>❖ Step-2: Collect the five sub-lot fractions of sample from five different regions (4 corners and centre) in total weighing 50 g. Remaining 200 g sample shall return to pack.</p>  <p>❖ Step-3: Combine and mix all 5 sub-lot fractions into one.</p>  <p>❖ Step-4: From the above, weigh and use 20 g of sample for next step. Spread it to very thin layer (close to uni-layer; around 2 - 3 mm) on white sheet.</p>



❖ **Step-5:** Slowly move the magnet (~ 1000 gauss strength) over thinly spread (around 2 - 3 mm height) tea sample, as above in the flow manner indicated in below diagram. Repeat this manual magnet movement multiple times over 10 min duration. Collect the iron particles sticking to magnet each time of movement and pool in petri dish (Note: magnet should pass just above the surface of Tea powder).



❖ **Step-6:** Spread the collected iron pieces (which may contain few tea particles also along, due electrostatic attraction) on white paper and use magnet movement (2nd time), above the distance of 0.5 - 1.0 cm from the spread layer on paper. This second action of magnet collects only iron particles, leaving tea sample on paper.

❖ **Step-7:** Take the weight of the collected iron particles, sticking on magnet, using analytical balance.

❖ **Step-8:** Repeat the entire process in triplicate for averaging.

Calculation with units of expression	Calculation (mg/Kg) : $\frac{\text{Weight of the iron filings (mg)} \times 1000}{\text{Weight of the sample(g)}}$
Reference	IS 3633:2003 [Black Tea – Specification (Second Revision)]
Approved by	Scientific Panel on Methods of Sampling and Analysis

Note: The aforesaid test method is standardized/validated method. However it would be the responsibility of the respective testing laboratory to verify the performance of this method onsite and ensure that it gives proper results before putting this method into use.