



HEALTH PROTECTION BRANCH

OTTAWA

DETERMINATION OF HEAVY FILTH IN BLACK TEA

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**1. APPLICATION**

This method is applicable to the sampling and examination of black tea for heavy filth to determine compliance with Sections 4, 5 and 7 of the Food and Drugs Act. This method replaces ExFLP-18 dated September 1987.

**2. DEFINITION OF TERMS**

A lot is defined as that amount (volume, weight, etc.) of the food which is produced, stored and/or shipped under conditions as nearly uniform as possible, preferably designated by a common container code or marking, and, in any event, consisting of not more than one variety, grade or type of product from a single identifiable source.

**3. COLLECTION OF SAMPLES**

- 3.1 Scrutinize the entire lot for live infestation. If live infestation is found, do not sample until after fumigation or other effective treatment.
- 3.2 Obtain three sample units selected at random from the lot of at least 25 g each using appropriate sampling equipment and containers. Three sample units constitute a sample.
- 3.3 Each sample unit must be kept separate and labelled 1, 2 and 3. Complete information respecting the lot size, weight of individual containers, country of origin, exporter, importer, or domestic manufacturer, and product and lot identification should be recorded and should accompany the sample.

**4. MATERIALS AND SPECIAL EQUIPMENT**

- 1) 400 mL beaker and suitably sized cover
- 2) Chloroform (CHCl<sub>3</sub>)
- 3) Carbon tetrachloride (CCl<sub>4</sub>)
- 4) Stirring rod (solvent resistant plastic preferred)
- 5) Wash bottles
- 6) Suction filtration apparatus with Buchner or Hirsch funnel
- 7) Plain and ashless filter paper (filter paper should be larger than funnel)

- 8) Petri dishes (suitable size to fit filter paper)
- 9) Stereoscopic microscope (10-30x)
- 10) Platinum crucible
- 11) Muffle oven
- 12) Desiccator

## 5. PROCEDURE

The examination shall be carried out in accordance with the following instructions.

### 5.1 Preparation of Analytical Units

5.1.1 In a random fashion from a sample unit weigh 25 g of tea. For bagged tea, remove entire contents from bags and weigh 25 g. This 25 g constitutes an analytical unit.

5.1.2 Repeat Step 5.1.1 for remaining two sample units.

### 5.2 Isolation

5.2.1 Transfer an analytical unit to a 400 mL beaker.

5.2.2 Add 200-250 mL  $\text{CHCl}_3$  to beaker. Stir thoroughly, cover, and let stand 30 minutes with occasional stirring.

5.2.3 Decant tea and  $\text{CHCl}_3$  onto a large plain filter paper cup and filter with suction leaving heavy residue of sand and soil in beaker.

5.2.4 Add 50-100 mL of  $\text{CHCl}_3$  to beaker and stir vigorously to dislodge sand or soil particles attached to remaining tea. Cover and let stand 30 minutes with occasional stirring.

5.2.5 Decant tea and  $\text{CHCl}_3$  onto filter paper in funnel as in Step 5.2.3.

5.2.6 Wash down sides of beaker with approximately 50 mL of  $\text{CHCl}_3$  from wash bottle, stir vigorously, cover, and let stand 15 minutes. Decant tea and  $\text{CHCl}_3$  onto filter paper as in Step 5.2.3.

5.2.7 Repeat Step 5.2.6 until essentially no tea remains in beaker.

5.2.8 If some tea still remains at the bottom add 50 mL  $\text{CHCl}_3$  and 50 mL  $\text{CCl}_4$ . Let stand 15 minutes and decant as in Step 5.2.3. CAUTION:  $\text{CCl}_4$  CAN BE A HEALTH HAZARD.

5.2.9 Filter residue from beaker onto preweighed ashless filter paper. Transfer filter paper to petri dish.

### 5.3 Examination

Examine particles of heavy filth microscopically at 30x for glass particles, metal particles, insect excreta, rodent excreta, insect eggs, and insect larvae.

### 5.4 Recording Results: ExFLP-18

5.4.1 Record the number and size range of each category of heavy filth detected. This should be done for each analytical unit separately.

5.4.2 Dry filter paper and weigh. Determine weight of heavy filth by difference. If there is an appreciable amount of residue, transfer filter paper with contents to a preweighed crucible and ash in an oven at 550-600°C for two hours. Cool material in a desiccator and weigh. Determine ashed weight by the difference, and record.

**6. INTERPRETATION**

6.1 See Table 2 of "Health Protection Branch Standards and Guidelines for Microbiological Safety and General Cleanliness of Food - An Overview" found in Volume 1 of the Compendium of Analytical Methods for HPB guidelines relating to different types of extraneous materials. HPB has guidelines for acceptable levels of heavy filth in bagged black tea.

6.2 If there is a question as to the acceptability of the lot, contact Evaluation Division, Bureau of Microbial Hazards, Food Directorate, Health Protection Branch, (Phone (613) 957-0349 or FAX (613) 952-6400).