DRAFT TANZANIA STANDARD

Determination of Crude fiber in cocoa products

.

TANZANIA BUREAU OF STANDARDS

0. Foreword

This draft Tanzania standard prescribes the method for determination of Crude Fiber in Cocoa Products.

In the preparation of this draft Tanzania standard assistance was derived from AOAC Official Method 930.20 Crude Fiber in cacao products

In reporting the result of a test or analysis made in accordance with this standard, if the final value observed or calculated, is to be rounded off, it shall be done in accordance with TZS 4

1. Scope

This method specifies determination of the Crude Fiber in Cocoa Products.

2. Mode of Application

Applied to cacao products with or without dairy ingredients

3. Reagents and equipment

3.1. Ether-solvent grade.

3.2. Ethyl alcohol.

3.3. Sodium oxalate solution, one % (w/v)

3.4. Dilute sulphuric acid, 1.25 % (w/v) accurately prepared.

3.5 Sodium hydroxide solution, 1.25 % (w/v), accurately prepared.

3.6. Asbestos, Gooch-grade, medium fibre, acid-washed and ignited.

4. Apparatus

4.1. centrifuge bottle

4.2. air oven

4.3. flattened glass rod

4.4. dish

4.5. flask

4.6. reflux water condenser

4.7. funnel.

4.8. electric muffle furnace

4.9. Gooch crucible

5. Procedure

5.1. Cacao products not containing dairy ingredients.

5.1.1. Treat test portion (or amount of sweet chocolate or cocoa equivalent to 7 g liquor) in centrifuge bottle with two 100 mL portion ether, centrifuging and decanting after each addition. Dry residue on steam bath and then in oven at l00°C and crush to powder in bottle with flat-end rod. If necessary, grind material in mortar and extract third time with ether. Wash mixture in bottle with three 100mL portions H_2O at room temperature, shaking well each time until no cacao material adheres to bottle.

5.1.2. Centrifuge 10-15min after each washing, and decant aqueous layer. Wash residue in same fashion with two 100 mL portions alcohol and one 100mL portion ether.

5.1.3. Transfer residue to Pt dish, dry to constant weight, and grind in mortar. Weigh accurately 2 g of the dried material in a tared porcelain, silica or platinum dish. Ignite with a Meker burner/ Hot plate for about one hour. Complete the ignition by keeping in a muffle furnace at 550 ± 10°C until grey ash and cool into a desiccator.

5.2. In cacao products containing dairy ingredients.

5.2.1. Treat 50g milk chocolate with three 100 mL portions ether in centrifuge bottle, centrifuging and decanting after each addition. Dry residue in bottle and crush to powder with flat-end glass rod as in (a). Shake with 100mL 1% sodium oxalate solution (w/v), and let stand 30 min.

5.2.2. Centrifuge and decant. Wash in bottle with three 100 mL portions H_2O at room temperature, shaking well each time, until no cacao material adheres to bottle. Centrifuge 10-15min after each washing and decant.

5.2.3. Wash residue in same fashion with two 100 mL portions alcohol and one 100mL portion ether. Transfer residue to Pt dish, dry to constant weight at l00°C, and grind in mortar. Weigh 2 g dried material and determine % crude fiber.

6.0. Calculation

Crude fiber (on moisture and fat–fibre basis), % by weight, (percent by mass) = $\frac{70(W1 - W2)}{W}$

Where

W1 = the weight (mass), in g of crucible and contents after ashing

W2 = the weight (mass), in g of empty crucible;

W = the weight (mass), in g of the moisture and fat-free material taken for the test.