**072106T4FTC**

**FOOD TECHNOLOGY LEVEL 6**

**FOP/OS/FT/CR/01/6/A**

**Manage Quality of Food Products**

**March/April 2025**

**TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION COUNCIL (TVET CDACC)**

**PRACTICAL ASSESSMENT**



**Time:** 4 HOURS

**INSTRUCTIONS TO THE CANDIDATE**

1. You are required to perform the following tasks
   i. Prepare 0.1M sodium hydroxide
   ii. Determine the free fatty acids content of each of the provided edible oil samples
   iii. Determine the smoke point of each of the provided edible oil samples

**This paper consists of THREE (3) printed pages**

**Candidates should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing.**

2. You will be provided with the following resources:
    - Sodium hydroxide pellets
    - Oil samples FB, FK and FU
    - Absolute Ethanol
    - Phenolphthalein indicator
    - Distilled water
    - Droppers
    - Digital weighing balance,
    - Hotplate
    - Digital thermometer, non-contact, (Range 0-300ºC)
    - 250 ml volumetric flask
    - 250 ml conical flasks
    - 25ml pipette
    - Burette
    - Clamp and stand
    - White tile
    - Filter funnel
    - Stirring glass rods
    - 50 ml Pyrex/borosilicate glass beakers
    - Pair of tongs
    - Aluminium foils
    - Small labels
    - Serviettes
    - Foolscaps
    - Nitrile gloves



**Procedure for task 1: Prepare 0.1M sodium hydroxide**

1. Prepare 0.1 M NaOH

**Procedure for task 2: Determine the free fatty acids content**

1. Weigh 5 g duplicate samples of each of the food samples FB, FK and FU into the conical flasks.
2. To each sample in the flask, add 50 ml of ethanol and shake thoroughly for 20 seconds.

3. Warm each of the food sample in the conical flask to 50ºC.
4. Carry out titration for each of the pairs of food samples
5. Report the average titre for each sample in the table below.

| | FB | | FK | | FU | |
|---|---|---|---|---|---|---|
| | **1** | **2** | **1** | **2** | **1** | **2** |
| Final burette reading | | | | | | |
| Initial burette reading | | | | | | |
| Titre (vol. of NaOH used) | | | | | | |
| **Average titre, Va** | | | | | | |
| **Acid Value** | | | | | | |

6. Compute the acid values for each sample using the formula below and fill the computed values of acid value for each food sample in the table in step 5



$$\textbf{Acid value } (mgKOH/g) = \frac{\textbf{Vol. of Alkali, Va } (ml) \times \textbf{Molarity of Alkali} \times 56.1}{\textbf{Weight of sample, } (g)}$$

**Procedure for Task 3: Determine the smoke point**

1. Weigh exactly 30 g of each of the food samples FB, FK and FU into the glass beakers.
2. Determine the smoke points for each of the oil sample

| SAMPLE | **FB** | **FK** | **FU** |
|---|---|---|---|
| SMOKE POINT (ºC) | | | |

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