

## FUNGICIDE : DITHIOCARBAMATE

Fungicide : Dithiocarbamates are another group of pesticides, widely used in the agricultural products especially in vegetables and fruits. Some chemicals in these group are less toxic, some are very toxic and there is a data of causing carcinogenic in the test animal. Nowadays, the trend of imported dithiocarbamates are going up, but there is no monitoring data of these residues in food. Therefore, the rapid test is now necessary in testing them for consumer protection.

### : DTC TEST KIT

Detection limit : Peppers, Chili 0.8 mg./kg.  
(as mancozeb) Other vegetables & fruits  
0.4 mg./kg.

### TARGET SAMPLE

Vegetables & Fruits

### TARGET COMPOUNDS

ZINEB, MANEB, MANCOZEB, METRIRAM,  
MABAM, NABAM, PROPINEB, THIRAM, ZIRAM,  
FERBAM

## EQUIPMENT, GLASSWARES & DTC KIT

- Equipment & Glassware :
  - Vortex Mixer, Test tube, Rack, Forceps, Glass funnel size 3.5-4.5 cm., Autopipette size 100-1000  $\mu$ l. and 10-100  $\mu$ l.
- DTC Reagents :
  - DTC Solution, DTC-1, DTC-2, DTC-3, DTC-4, DTC-5, Cotton wool

## TESTING PROCEDURE : EXTRACTION



- Sampling and weigh 20 g. of sample except 10 g. for Pepper, Chili.
- Pipette 1 ml. of DTC Solution in to a test tube.
- Roll a cotton wool in cycle diameter about 1 cm. and put in a glass funnel, which supported by 1 ml. DTC Solution test tube, then pipette ~0.25 ml. of DTC Solution from the tube in to the cotton



wool or only for wetting.

- Catch the wet cotton wool by a forceps and swab on the outer part of the sample until the sample left.
- Put the swab cotton wool (already swab the outer part of sample) in to the original tube, then shake with Vortex.
- Catch the wool from the tube and put on the glass funnel.
- Squeeze the wool until drying. Then leave the wool and take the glass funnel off.
- Shake the sample extract homogeneously and bring to test for DTC-residues with DTC-reagent kit.

**TESTING PROCEDURE :**  
**TESTING BY DTC – REAGENTS**

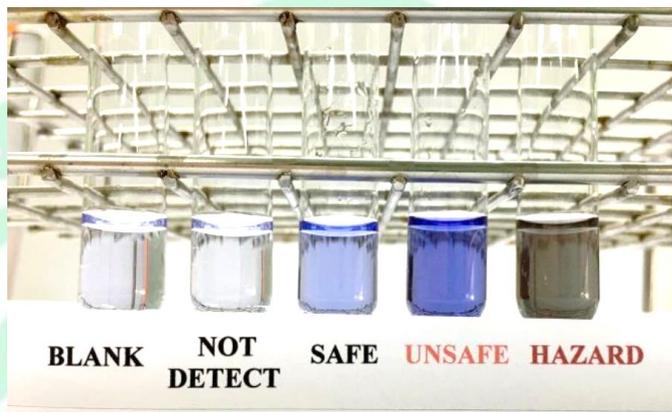
Perform the following table :

	BLANK TUBE	SAMPLE TUBE	
	DTC SOLUTION 250 microlitre	SAMPLE EXTRACT 250 microlitre	
DTC-1	250 microlitre	250 microlitre	shake
DTC-2	20 microlitre	20 microlitre	Shake
DTC-3	250 microlitre	250 microlitre	shake
DTC-4	500 microlitre	500 microlitre	shake
DTC-5	200 microlitre	200 microlitre	shake *and observe the color

If no autopipette, can use plastic pipette, 250 µl. = 0.25 ml./1 part, 500 µl. = 0.5 ml./2 part, 20 µl. = 1 drop and 200 µl. = 1 part remove 1 drop

Evaluate the result :compare the color in the blank and sample tubes

**EVALUATION THE RESULT**



COLOR IN THE TUBE	RESULT
Sample tube ≤ Blank tube	Not detected
Sample tube > Blank tube	Detected, Safe
An obviously violet color - gray appear in the sample tube	Detected, Unsafe

**CAUTION**

- ⊕ Place testing kit out of children reach.
- ⊕ Should wear gloves during analysis.
- ⊕ When the chemical reagents contact your skin, wash out with the clean water.
- ⊕ After using the DTC – Reagents, cap the bottles immediately.

**STORAGE OF DTC - REAGENTS**

Keep a set of DTC – Reagents at below 30 °C, can be used not less than 6 months.

**DTC**

**FUNGICIDE**

**DITHIOCARBAMATE**

**TEST KIT**



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