

Carbonyl assay kit

(Cat/No.:BC173 Size:50T/48S)

1. Significance of detection

A carbonyl group is an organic functional group (C=O) composed of carbon and oxygen atoms connected by a double bond. It is a component of aldehyde, ketone, carboxylic acid, carboxylic acid derivatives and other functional groups. Determination of carbonyl compounds by spectrophotometry can provide great help for physiological and biochemical research.

2. Measuring principle (Ultraviolet colorimetric method)

The carbonyl group can react with 2, 4-dinitrophenylhydrazine to form a reddish brown hydrazone substance, which has a characteristic absorption peak at 370nm. The absorbance value can be measured by colorimetry, so as to calculate the carbonyl content.

3. Composition (The kit is valid for 6 months)

Reagent I: Assay working solution, 15ml × 1 bottle, stored at 4 °C.

Reagent II: 1mg/ml standard, 15ml × 1 bottle, stored at 4 °C.

4. Operation steps

	Blank tube	Standard tube	Measuring tube
Double steamed water (ml)	0.875	0.750	0.750
Standard (ml)		0.125	
Sample (ml)			0.125
Reagent I (ml)	0.125	0.125	0.125

The mixture was mixed and allowed to stand for 5 minutes, then the distilled water was zeroed, the optical diameter was 0.5cm, and the absorbance value of each tube was determined by colorimetry at 370nm.

5. Calculation formula

$$\text{Carbonyl group content (mg/ml)} = \frac{\text{Determination of OD Value} - \text{Blank OD Value}}{\text{standard OD Value} - \text{Blank OD Value}} \times \text{Concentration of standard (1mg/ml)} \times \text{Samples were measured before dilution}$$

6. Calculation Example

Taking 0.125ml of the liquid after X-ray irradiation with 30% ethanol, the carbonyl content was determined according to the operating table: the absorbance value of the blank tube was 0.396, the absorbance value of the standard tube was 0.448, and the absorbance value of the measuring tube was 0.452, then the calculated result was:



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$$= \frac{0.452 - 0.396}{0.448 - 0.396} \times 1\text{mg/ml} \times 1 = 1.08\text{mg/ml}$$