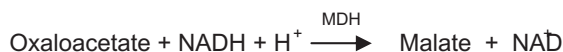
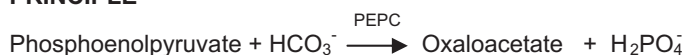




### CLINICAL SIGNIFICANCE

Increased blood CO<sub>2</sub> (hypercapnia) causes respiratory acidosis. CO<sub>2</sub> rises with decreased alveolar ventilation due to diseases of the lungs or bronchial tree, or breathing CO<sub>2</sub> enriched air. Depression of the overall lung capacity by certain drugs may lead to retention of CO<sub>2</sub>.

### PRINCIPLE



The reduction in absorbance at 405 nm caused by the oxidation of NADH analog is proportional to the bicarbonate concentration in the sample.

### SPECIMEN COLLECTION AND PREPARATION

Serum or heparinized plasma may be used EDTA, citrate and oxalate should not be used as anticoagulants, as they will affect results. Samples should be drawn on ice and analyzed within 1 hour. Samples should be kept tightly closed, as CO<sub>2</sub> will diffuse from the sample causing erroneous values (up to 6 mmol/hr).

### REAGENT COMPOSITION

Reagent 1 (R1)	
Tris Buffer	pH 7.5
PEP	12.5 mmol/l
NADH analog	0.6 mmol/l
MDH	4100 U/l
PEPC	400 U/l

### KIT CONTENTS

CODE No. CO201 CO202  
Pack size : (40 ml) (6 x 50 ml)

Reagent 1 2 x 20 ml 6 x 50 ml

Calibrator 1 x 1 ml 3 x 1 ml

Calibrator Concentration : See the vial label

### STABILITY AND PREPARATION OF REAGENTS

All reagents are ready to use.  
Stable up to the expiry date when stored at 2-8 °C.  
Once opened the reagent is stable for 1 month.

### MATERIALS REQUIRED BUT NOT PROVIDED :

Carbon Dioxide or Bicarbonate Control (Use of assayed QC sera is recommended to validate test result).

### ASSAY CONDITIONS:

Wavelength : ..... 405 nm  
Cuvette: ..... 1 cm light path  
Constant temperature ..... 37°C  
Reaction (Mode)..... Fixed Time  
Calibrator..... See on vial  
Delay ..... 60 sec  
Read time..... 120 sec  
Linearity..... 50 mMol/L  
Unit..... mMol/L  
Blanking ..... D. Water  
Slope of reaction..... Decreasing

### ASSAY PROCEDURE

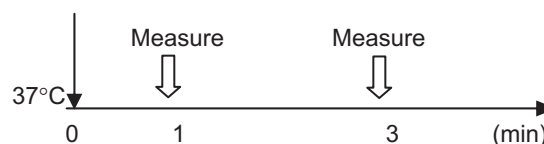
#### Test Procedure for Analyzers

Assay Mode: Fixed Time

Wave Length : 405nm

Sample: 5µl

R1: 500µl



- Mix 5 µl sample with 500 µl R1 and incubate at 37°C for 1 minute.
- Read initial absorbance and start timer simultaneously, read again after 1 and 2 minutes.

### CALCULATION

$$\text{Concentration} = \frac{\Delta A_{\text{sample}} / \text{min}}{\Delta A_{\text{calibrator}} / \text{min}} \times \text{Calibrator value}$$

### NORMAL VALUE

22 - 29 mmol/l

Serum or plasma: Venous

The above reference range is guideline and all the laboratories must establish their own normal reference range. This range can not be compared with the colorimetric (Glusti method) kit based on the estimation of ammonia released in the final reaction. Final diagnosis should be made with correlation of clinical factors.

### LINEARITY

Samples with CO<sub>2</sub> contents higher than 50 mmol/l should be diluted with physiological saline and assayed again; multiply the results by the dilution factor.

### SENSITIVITY

The minimum detectable level that can be distinguished zero has been determined as 3 mmol/l.

### PERFORMANCE CHARACTERISTICS AND INTERFERENCES

The main interference in this assay is CO<sub>2</sub> from the air or from the breath of the analyst. The assay is not affected by the following interfering substances at the indicated concentration of Hemoglobin up to 800 mg/dl, Bilirubin up to 50 mg/dl, Intralipid up to 1000 mg/dl and Ascorbic acid up to 50 mg/dl.

### REFERENCES

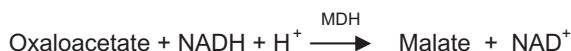
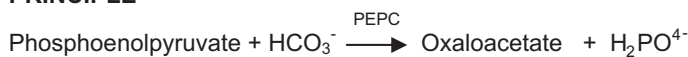
- Tietz, N. N., et al "Textbook of Clinical Chemistry" W. B. Saunders Co., 1986; 1172-1253.
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- Young D.S., Effects of Drugs on Chemical Laboratory Tests, 3rd ed., AACC Press 1990.
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Reagent 1 (R1)	
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PEP	12.5 mmol/l
NADH analog	0.6 mmol/l
MDH	4100 U/l
PEPC	400 U/l

**KIT CONTENTS**

CODE No. CO203  
Pack size : (10T)  
Reagent 1 10 Nos. (Prefilled)  
Calibrator 1 x 0.5 ml  
Calibrator Concentration : See the vial label

**STABILITY AND PREPARATION OF REAGENTS**

All reagents are ready to use.  
Stable up to the expiry date when stored at 2-8 °C.  
Once opened the reagent is stable for 1 month.

**MATERIALS REQUIRED BUT NOT PROVIDED :**

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Wavelength : ..... 405 nm  
Cuvette: ..... 1 cm light path  
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Delay ..... 60 sec  
Read time..... 120 sec  
Linearity..... 50 mMol/L  
Unit..... mMol/L  
Blanking ..... D. Water  
Slope of reaction..... Decreasing

**ASSAY PROCEDURE**

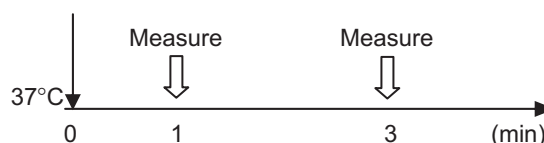
**PROCEDURE :**

1. Programme the Analyser and set Sipping volume 450 - 475 µl
2. Add 5 µl of sample directly into the prefilled R1 vial
3. Mix carefully (do not shake)  
Read the change of absorbance (ΔA) with delay time 60 sec and Read time 120 sec at 37°C

**Test Procedure for Analyzers**

Assay Mode: Fixed Time Wave Length: 405nm

Sample: 5 µl  
Add in R1



**CALCULATION**

$$\text{Concentration} = \frac{\Delta A_{\text{sample}} / \text{min}}{\Delta A_{\text{calibrator}} / \text{min}} \times \text{Calibrator value}$$

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