

# Carbon Dioxide (CO<sub>2</sub>) (Colorimetric PEPC)

**IVD**

REF.	Pack size
203 02 030	(2 x 30 ml) 60 tests

## Intended Use

Carbon dioxide reagent is intended for the in-vitro quantitative diagnostic determination of carbon dioxide in human serum or plasma on both automated and manual systems.

## Introduction

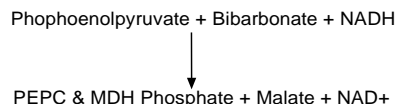
Approximately 90% of total carbon dioxide present in serum is in the form of bicarbonate. Measurement of bicarbonate together with glucose, Na<sup>+</sup>, K<sup>+</sup> and chloride is useful in assessment of disturbances of acid base balance resulting from metabolic or respiratory causes.

## Method

Colorimetric PEPC Method

## Principle

Colorimetric test for the quantitative determination of Carbon Dioxide (CO<sub>2</sub>) in serum and plasma :



## Reagents

CO<sub>2</sub> Calibrator C actual concentration is stated on the vial label

Reagent R

TRIS-Buffer (pH 7.5)  
PEP; PEPC; NADH (as reduced cofactor)  
MDH Activators, stabilizers, detergents  
Sodium Azide 0.095%

## Reagents preparation, storage and stability

Reagent is stable until expiration date stated on label when stored refrigerated at 2 - 8 °C. Once opened the reagent is stable for 1 month at specified temperature.

After opening of bottles the stability is until the printed expiration date, if there is no contamination during the handling.

## Precautions and Warnings

Reagent contains Sodium azide as preservative. Don't swallow! Don't touch skin and/or mucous membrane.

## Specimen collection and preservation

Serum, heparin plasma  
Don't use citrate or oxalate plasma  
Samples should be used immediately and can be stored at 2-8°C four 1 hour tightly closed.  
Discard contaminated samples.

## Procedure

Wavelength: 405 nm or 415 nm  
Optical path: 1 cm  
Assay type: Fixed rate  
Direction: Decrease  
First read time: 120 seconds  
Delay time: 60 seconds  
Last read time: 180 seconds  
Temperature: 37 °C  
Zero adjustment: Distilled water  
Sensitivity: 1 mmol/L  
Linearity: 50 mmol/L

	Reagent blank	Specimen/calibrator
Reagent (R)	1.0 ml	1.0 ml
Specimen/calibrator	—	10 µl

Mix and incubate for 2 min, read absorbance A1, and exactly after 1 minute read A2,  
Determine ΔA = A1-A2 (For R.blank,calibrator and sample)

Calculation

$$\text{CO}_2 \text{ (mmol/L)} = \frac{(\Delta A \text{ specimen} - \Delta A \text{ Blank})}{\Delta A \text{ Calibrator} - \Delta A \text{ Blank}} \times \text{conc. of calibrator}$$

## Quality control

Normal and abnormal control serum of known concentration should be analyzed with each run

## Sensitivity

1 mmol/L.

## Linearity

50 mmol/L.  
At higher concentrations dilute the samples 1+1 with NaCl solution 0.9%. Multiply result by 2.









## Expected Values

22 – 29 mmol/L  
Note: it is recommended that each laboratory should establish its own reference range.

## References

1. Van Slyke D.D. and W.C. Stadie, J. Biol. Chem. 49:1 1 (1921)
2. Sterling, R., and O. Flores, Clin. Chem. 18:544(1972)

## SYMBOLS IN PRODUCT LABELLING

	For in-vitro diagnostic use
	Batch Code/Lot number
	Catalogue Number
	Consult instructions for use
	Temperature Limitation
	Use by/Expiration Date
	CAUTION. Consult instructions for use
	Manufactured by