Spectrum For Diagnostic Industries

Carbon Dioxide (CO_2)
(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+, K+ 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_2) in serum and plasma :

Phophoenolpyruvate + Bibarbonate + NADH

↓

PEPC & MDH Phosphate + Malate + NAD+

Reagents

CO2 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 ^{o}C. oC.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
Senstivity:	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

$$CO2\ (mmol/L) = \frac{(\Delta A\ specimen - \Delta A\ Blank)}{\Delta A\ Calibrator - \Delta A\ Blank} \times conc.\ of calibrator$$

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 recommende 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

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

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