
Technical Note

No. TN11

An Evaluation of DCL CO2-L3K (Cat. No. 299-30/50) Reagent on the Hitachi 747

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10/19/99

An Evaluation of DCL CO2-L3K (Cat. No. 299-30/50) Reagent on the Hitachi 747

DCL CO2-L3K reagent was evaluated on the Hitachi 747 at an external site. This evaluation included testing linearity, within-run precision, run-to-run precision, interferences, LLD, reference range verification, as well as a correlation to Roche / BMC CO2 reagent. The performance data is attached, and a summary of the evaluation results is outlined below:

Linearity

This procedure is linear to 50 mEq/L (mmol/L).

Within-Run Precision

Mean	n	SD	CV (%)
12.2	10	0.4	3.5
22.1	10	0.3	1.4

Run-to-Run Precision

Mean	n	SD	CV (%)
13.3	15	0.6	4.5
22.9	15	0.8	3.5

LLD / Sensitivity

The minimal detectable value, as determined by assaying replicate water samples, is 1.9 mEq/L (mmol/L).

Reference Range Verification

10 fresh patient samples were tested to verify the stated reference range of 22 - 29 mEq/L (mmol/L). Results indicate that this reference range is acceptable.

Interference Study

(Acceptance Criteria \pm 10% in a normal serum sample)

Lipemia:

No significant interference noted to 1000 mg/dL (11.29 mmol/L) Intralipid equivalent to 3000 mg/dL (33.87 mmol/L) Triglyceride.

Bilirubin:

Acceptable results were obtained up to levels of 32 mg/dL (547 μ mol/L). At an added bilirubin concentration of 32 mg/dL (547

$\mu\text{mol/L}$), an 8% variance was observed in a 26 mEq/L (mmol/L) CO_2 sample.

Hemoglobin:

Acceptable results were obtained up to 400 mg/dL (62 $\mu\text{mol/L}$). At an added hemoglobin concentration of 400 mg/dL (62 $\mu\text{mol/L}$), an 8% variance was observed in a 25 mEq/L (mmol/L) CO_2 sample.

Correlation

DCL CO_2 -L3K versus Roche / BMC CO_2

DCL = 1.08 (Roche /BMC) -1.2 mEq/L (mmol/L)
"R" = 0.9364*
n = 40

Mean of x (Roche/BMC) = 22.5 mEq/L (mmol/L)
Mean of y (DCL) = 23.1 mEq/L (mmol/L)
Bias = 0.6

The low correlation coefficient (R) is due to the limited range of sample results (15 to 32 mEq/L [mmol/L]). All other correlation statistics indicate that these methods compare well, indicating that a larger study would produce a better correlation coefficient.

EP Evaluator data available by request.