

REF 57819

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IVD

CE

Stat Profile® PRIME Plus Analyzer



Instructions for Use Manual

*NOVA®
biomedical*

Ionized Calcium “Normalized” to pH 7.4

The activity and concentration of ionized calcium in whole blood is pH dependent. *In vitro*, a pH increase of 0.1 unit decreases the ionized calcium level by 4 to 5% (conversely, a pH decrease has an equal but opposite effect). The sample of choice for ionized calcium determination is anaerobically collected whole blood.

If an anaerobic sample is not available, by measuring the actual pH of the sample at which the ionized calcium concentration was measured normalized ionized calcium can be calculated. The normalized ionized calcium represents what the ionized calcium concentration would have been if the initial pH was 7.40 (the midpoint of the pH reference range). The equation used for this calculation is as follows:

$$\log [iCa]_{7.4} = \log [Ca^{++}]_X - 0.24 (7.4 - X)$$

Equation 33

where X = measured pH of the sample

$[iCa]_X$ = ionized calcium concentration in the sample at the measured pH

$[iCa]_{7.4}$ = normalized concentration of ionized calcium at pH 7.40

The equation assumes a normal concentration of total protein and may be used for measured values between pH 7.2 and 7.6. Between pH 6.9 and 7.2 and between pH 7.6 and 8.0, modified forms of the equation are used. Normalized ionized calcium values for samples with pH outside the range pH 6.9 to pH 8.0 are not displayed.