Formelverzeichnis

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(1) $pH = -\log\left(\frac{[H^+]}{mol \times dm^{-3}}\right)$ 2

(2) $HA \longleftrightarrow H^+ + A^-$ 2

(3) $\frac{[H^+][A^-]}{[HA]} = K'$ 2

(4) $-\log[H^+] = -\log[K'] - \log\frac{[HA]}{[A^-]}$ 3

(5) $pH = pK' + \log\frac{[A^-]}{[HA]}$ 3

(6) $H_2O + CO_2 \xleftrightarrow{Karboanhydratase} H_2CO_3 \leftrightarrow H^+ + HCO_3^-$ 4

(7) $[CO_2]_{gelöst} = \alpha_{CO_2} \times pCO_2$ 8

(8) $[CO_2] = 0{,}03\frac{mmol}{l \times mmHg} \times 40mmHg = 1{,}2\frac{mmol}{l}$ 8

(9) $K' = \frac{[H^+] \times [HCO_3^-]}{[CO_2]}$ 8

(10) $pH = pK' + \log\frac{[HCO_3^-]}{[CO_2]}$ 8

(11) $pH = pK' + \log\frac{[HCO_3^-]}{\alpha \times pCO_2}$ 9

(12) $pH = 6{,}1 + \log\frac{24mmol/l}{0{,}03\frac{mmol}{l \times mmHg} \times 40mmHg} = 7{,}40$ 9

(13) $AG(mmol/l) = ([Na^+]mmol/l + [K^+]mmol/l) - ([HCO_3^-] + [Cl^-])$ 14

(14) $AG_{c([alb])} = AG + 0{,}25 \times (40 - [alb])$ nach MORGEN, 2004 14

(15) $HA \times K_A = H^+ + A^-$ 16

(16) $[SID^+] - [HCO_3^-] - [A^-] - [CO_3^{2-}] - [OH^-] + [H^+] = 0$ 16

(17) $H_2O \leftrightarrow H^+ + OH^-$ 17

(18) $[H^+]^4 + ([SID] + K_A) \times [H^+]^3 + (K_A \times ([SID] - [A_{tot}]) - K'_W - K_1' \times S_{CO_2} \times pCO_2) \times [H^+]^2 -$
$(K_A \times (K_W' + K_1' \times S_{CO_2} \times pCO_2) - K_3 \times K_1' \times S_{CO_2} \times pCO_2) \times [H^+] - K_A \times K_3 \times K_1' \times S_{CO_2} \times pCO_2 = 0$ 17

(19) $SID_{eff} = f_{SID}(pH, p_{CO_2}, [Alb], [P_i])$ 18

(20) $SID^{+} - HCO_3^{-} - A^{-} = 0$ 22

(21) $pH = \log \frac{2SID^{+}}{K_{1'} S_{CO_2} pCO_2 + K_A A_{tot} - K_A SID^{+} + \sqrt{(K_{1'} S_{CO_2} pCO_2 + K_A SID^{+} + K_A A_{tot})^2 - 4K_A{}^2 SID^{+} A_{tot}}}$ ..22

(22) $[A_{tot}]mmol/l = 2{,}24 \times Tp(g/dl)$ 23

(23) $[A_{tot}]mmol/l = 1{,}84 \times TP(g/dl) + 0{,}59 \times [Pi](mg/dl)$ 23

(24) $[A_{tot}] = 2{,}25 \times [alb](g/dl) + 1{,}4 \times [glob](g/dl) + 0{,}59[P_i](mg/dl)$ 23

(25) $SIG = SID_{apparent} - SID_{effektiv}$ 24

(26) $SIG = \frac{A_{tot}}{1 + 10^{(pK_A - pH)}} - AG$ 24

(27) $[SID] = [Na^{+}] + [K^{+}] - [Cl^{-}] - [lactate^{-}]$ nach WEINSTEIN et al., 1991; REHM et al., 2004 .25

(28) $[SID] = [Na^{+}] + [K^{+}] + [Ca^{2+}] + [Mg^{2+}] - [Cl^{-}] - 1{,}5$ nach FIGGE et al., 1991 25

(29) $[SID] = [Na^{+}] + [K^{+}] + [Ca^{2+}] + [Mg^{2+}] - [Cl^{-}] - [lactate^{-}]$ nach KELLUM, 2000.....26

(30) $[SID] = [Na^{+}] + [K^{+}] + [Ca^{2+}] - [Cl^{-}] - [lactate^{-}]$ AGUILERA-TEJERO et al., 2000.....26

(31) $[SID] = [Na^{+}] + [K^{+}] + [Ca^{2+}] + [Mg^{2+}] - [Cl^{-}]$ WHITEHAIR et al., 1995.....26

(32) $[SID] = [Na^{+}] + [K^{+}] - [Cl^{-}]$ NAVARRO et al., 2005 26

(33) $[SID] = [Na^{+}]_{\bar{x}normal} - \left([Cl^{-}]_{patient} \times \frac{[Na^{+}]_{\bar{x}normal}}{[Na^{+}]_{patient}} \right)$ BAILEY und PABLO, 1998.....26

(34) $[SID] = [\left(Na^{+} + K^{+} + Ca^{2+} + Mg^{2+}\right) - \left(Cl^{-} + lactate^{-} + PO_4^{2-}\right)]$ STÄMPFLI et al., 1999.....26

(35) $[Atot]mmol/l = 0{,}24 \times TP(g/l)$ 28

(36) $[A^{-}] = [alb] \times (0{,}123 \times pH - 0{,}631) + [P_i] \times (0{,}309 \times pH - 0{,}469)$ nach FIGGE et al., 1991; FIGGE et al., 1992.....28

(37) $[A_{tot}] = 0{,}211 \times [TP](g/l)$ nach STÄMPFLI et al., 1999.....28

(38) $[A_{tot,1}] = 0{,}224 \times [TP](g/l)$ 59

(39) $[A_{tot,2}] = 0{,}225 \times [alb](g/l) + 0{,}14 \times [glob](g/l) + 1{,}827466 \times [P_i](mmol/l)$ 59

(40) $SIG = \frac{A_{tot,1}}{1 + 10^{(pK_A - pH_{ven})}} - AG$ 59

(41) $pH_{ven} = \log \frac{2SID4}{K_{1'} \alpha_{CO_2} pCO_2 + K_A A_{tot,1} - K_A SID4 + \sqrt{(K_{1'} \alpha_{CO_2} pCO_2 + K_A SID4 + K_A A_{tot,1})^2 - 4K_A{}^2 SID4 A_{tot,1}}}$ 59