

Supplementary Material

Table S1. Hydrolysis constant values of Mn^{2+} at different temperatures and ionic strengths in NaCl.

Species	$\log\beta$ ^{a)}				
	$t = 15^\circ C$	$t = 25^\circ C$		$t = 37^\circ C$	
	$I = 0.15$ ^{b)}	$I = 0.15$ ^{b)}	$I = 0.48$ ^{b)}	$I = 0.96$ ^{b)}	$I = 0.15$ ^{b)}
MOH ⁺	-10.6(1)	-10.46	-10.70	-10.95	-9.20(9)
M ₂ (OH) ₃ ⁺	-26.35(2)	-24.47	-24.69	-24.92	-23.51(4)
Ref.	^{c)}	^{d)}	^{d)}	^{d)}	^{c)}

^{a)} Refer to the reaction: $pM^{2+} + qH_2O = M_p(OH)_q(2p-q) + qH^+$ ^{b)} in mol L⁻¹; ^{c)} unpublished data, this work; ^{d)} literature data.

Table S2. Protonation constant values of *Amp* and *Amox* at different temperatures and ionic strengths in NaCl.

<i>t</i> /°C	L	Species ^{a)}	$\log\beta^H$			Ref.
			<i>I</i> = 0.15 ^{b)}	<i>I</i> = 0.5 ^{b)}	<i>I</i> = 1 ^{b)}	
15	<i>Amp</i>	LH	7.317			c)
15		LH ₂	9.899			
25		LH	7.051	7.095	7.244	
25		LH ₂	9.638	9.660	9.805	
37		LH	6.757			
37		LH ₂	9.351			
15	<i>Amox</i>	LH	9.706			c)
15		LH ₂	17.287			
15		LH ₃	19.783			
25		LH	9.565	9.482	9.533	
25		LH ₂	16.865	16.807	16.972	
25		LH ₃	19.427	19.404	19.615	
37		LH	9.400			
37		LH ₂	16.395			
37		LH ₃	19.049			

^{a)} Refer to the reaction $L + rH = LH_r$, charges omitted for simplicity; ^{b)} in mol L⁻¹; ^{c)} F. Crea, D. Cucinotta, C. De Stefano, D. Milea, S. Sammartano, G. Vianelli Modelling solubility, acid–base properties and activity coefficients of 3 amoxicillin, ampicillin and (+)6-aminopenicillanic acid, in NaCl(aq) at different ionic strengths and temperatures Eur. J. Pharm. Sci. 47 (2012) 661-677.

Table S3. Recalculated formation constant values for Mn²⁺-*Amp* and Mn²⁺-*Amox* species at different ionic strengths and temperatures.

L	Species	logβ ^{a)}				
		t = 15°C		t = 25°C		t = 37°C
		I = 0.15 ^{b)}	I = 0.15 ^{b)}	I = 0.48 ^{b)}	I = 0.96 ^{b)}	I = 0.15 ^{b)}
<i>Amp</i>	MnLH	9.58(12) ^{c)}	9.52(14) ^{c)}	9.16(9) ^{c)}	8.73(13) ^{c)}	8.28(10) ^{c)}
	MnL	2.32(3)	2.23(9)	2.14(6)	2.18(9)	2.06(3)
<i>Amox</i>	MnLH ₂	19.88(2)	19.63(5)	19.68(4)	20.11(4)	19.52(4)
	MnLH	12.43(5)	12.70(6)	12.59(6)	12.56(9)	12.68(4)

^{a)} Refer to the reaction M⁺ L + rH = MLH_r, charges omitted for simplicity; ^{b)} in mol L⁻¹; ^{c)} ≥95% of confidence interval.