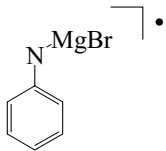
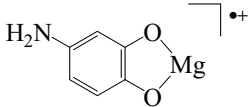
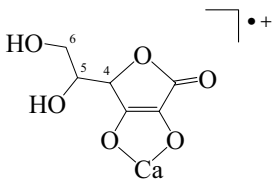
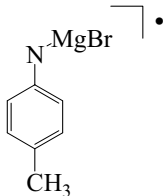
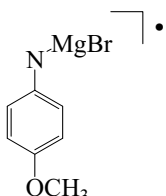
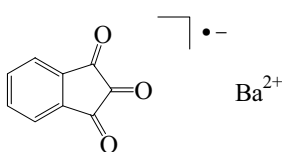
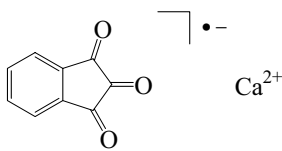
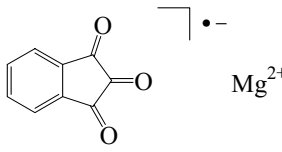
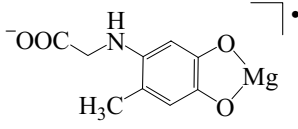
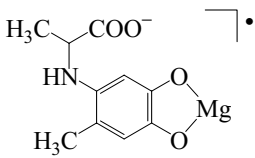
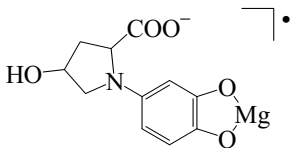
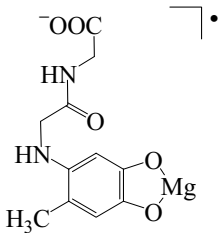
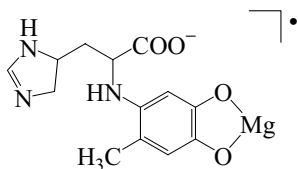
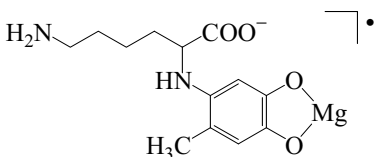


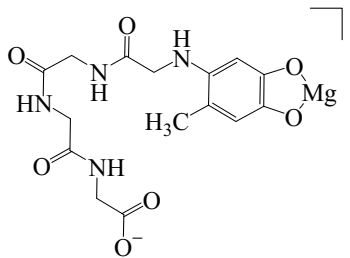
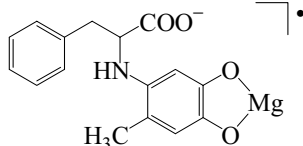
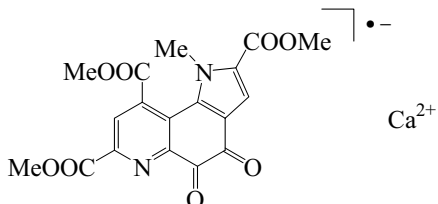
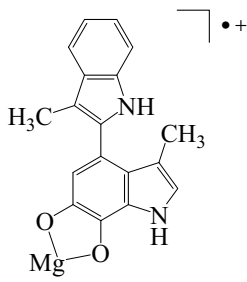
Substance	Generation / Matrix or Solvent / Method / T [K]	g -Factor / a -Value [mT]	Ref. / add. Ref.
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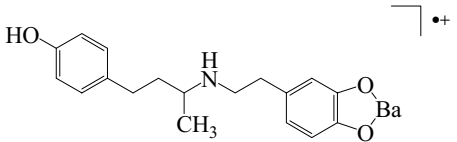
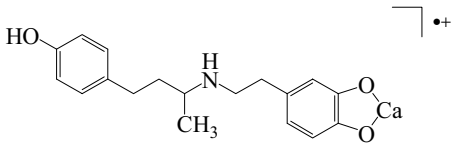
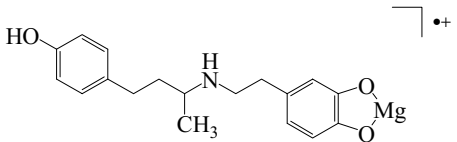
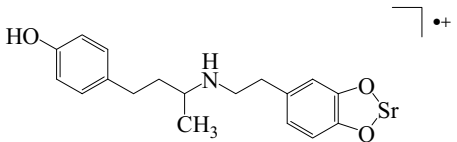
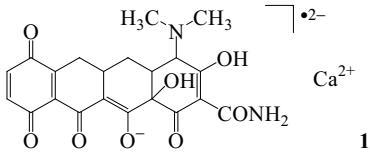
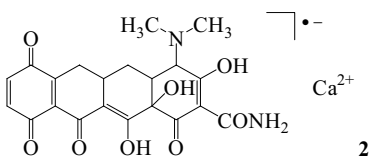
3.3 Complexes of group 2 (Be, Mg, Ca, Sr, Ba)

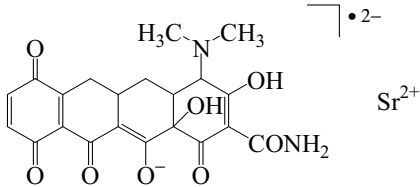
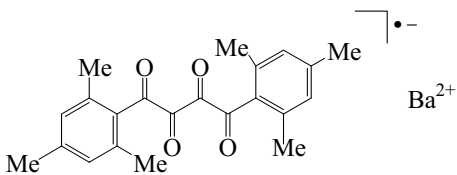
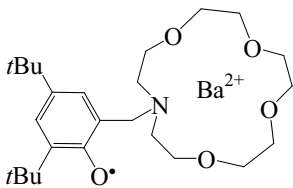
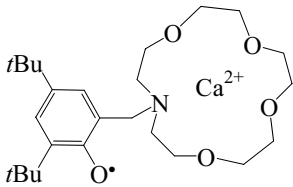
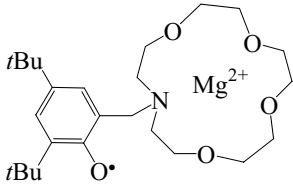
$[\text{BaO}_2]^{\bullet+}$ $\text{Ba}^{2+} \text{O}_2^{\bullet-}$	chemical reaction acetonitrile ESR / 143	$g_{zz} = 2.0587$	00Fuk
$[\text{CaO}_2]^{\bullet+}$ $\text{Ca}^{2+} \text{O}_2^{\bullet-}$	chemical reaction acetonitrile ESR / 143	$g_{zz} = 2.0499$	00Fuk
$[\text{MgO}_2]^{\bullet+}$ $\text{Mg}^{2+} \text{O}_2^{\bullet-}$	chemical reaction acetonitrile ESR / 143	$g_{zz} = 2.0451$	00Fuk
$[\text{O}_2\text{Sr}]^{\bullet+}$ $\text{Sr}^{2+} \text{O}_2^{\bullet-}$	chemical reaction acetonitrile ESR / 143	$g_{zz} = 2.0558$	00Fuk
$[\text{C}_6\text{H}_5\text{BrMgN}]^{\bullet}$ 	chemical reaction THF ESR / 298	2.0031 ^{14}N : 0.980 $\text{H}(\text{p})$: 0.575 $\text{H}(\text{o})$: 0.520 $\text{H}(\text{m})$: 0.073	85Oku
$[\text{C}_6\text{H}_5\text{MgNO}_2]^{\bullet+}$ 	chemical reaction water, pH 6.6 ESR / 294	2.00384 ^{14}N : 0.348 $\text{H}(3)$: 0.122 $\text{H}(6)$: 0.059 $\text{H}(5)$: 0.495 $\text{H}(\text{NH})$: 0.282 $\text{H}(\text{NH}')$: 0.297	88Pra
$[\text{C}_6\text{H}_7\text{CaO}_6]^{\bullet+}$ 	electrochemical or photosensitized reaction dimethylsulfoxide ESR / 298	$\text{H}(4)$: 0.1423 $\text{H}(5)$: 0.0063 $\text{H}(6)$: 0.0261 $\text{H}(6)$: 0.0178	86Gex

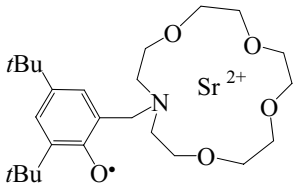
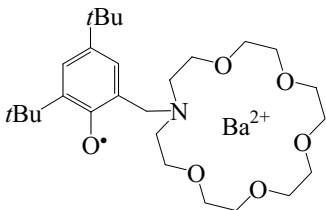
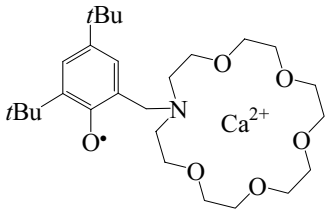
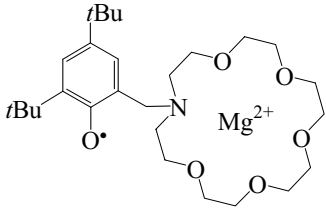
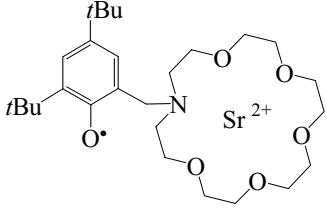
Substance	Generation / Matrix or Solvent / Method / T [K]	g -Factor / a -Value [mT]	Ref. / add. Ref.
$[C_7H_7BrMgN]^{\bullet}$ 	chemical reaction THF ESR / 298	2.0031 ^{14}N : 1.050 H(o): 0.520 H(m): 0.110 H(CH ₃): 0.520	85Oku
$[C_7H_7BrMgNO]^{\bullet}$ 	chemical reaction THF ESR / 298	2.0031 ^{14}N : 1.100 H(o): 0.500 H(m): 0.05	85Oku
$[C_9H_4BaO_3]^{\bullet+}$ 	chemical reaction HMPTA ESR / 298 enthalpy for ion pairing	H(4 H): 0.093	84Ech
$[C_9H_4CaO_3]^{\bullet+}$ 	chemical reaction HMPTA ESR / 373 enthalpy for ion pairing	H(4 H): 0.094	84Ech
$[C_9H_4MgO_3]^{\bullet+}$ 	chemical reaction HMPTA ESR / 298 enthalpy for ion pairing	H(2 H): 0.088 H(2 H): 0.103	84Ech
$[C_9H_8MgNO_4]^{\bullet 2-}$ 	chemical oxidation water, TRIS buffer, pH 8.5 ESR / RT data on deuterated compounds available	^{14}N : 0.35 H(aromatic, 1 H): 0.045 H(aromatic, 1 H): 0.05 H(sidechain, 3 H): 0.48 H(sidechain, 2 H): 0.32 H(N-H): 0.35	87Kal

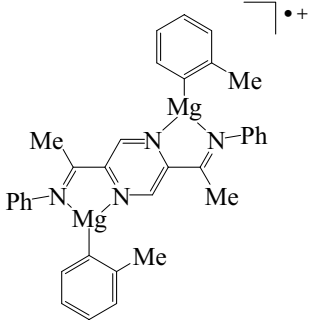
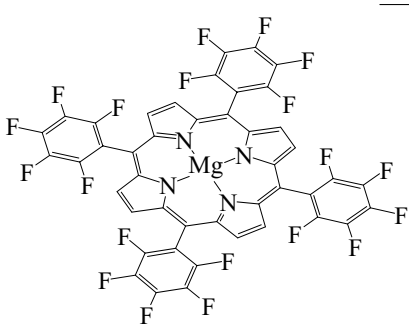
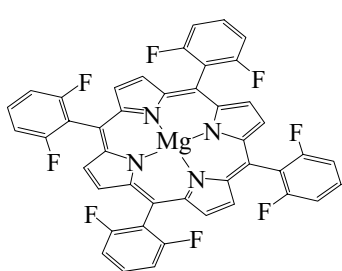
Substance	Generation / Matrix or Solvent / Method / <i>T</i> [K]	<i>g</i> -Factor / <i>a</i> -Value [mT]	Ref. / add. Ref.
$[C_{10}H_{10}MgNO_4]^{•2-}$ 	chemical oxidation water, TRIS buffer, pH 8.0 ESR / RT	^{14}N : 0.35 H(aromatic, 1 H): 0.045 H(aromatic, 1 H): 0.053 H(sidechain, 3 H): 0.48 H(sidechain, 1 H): 0.32 H(N-H): 0.35	87Kal
$[C_{11}H_{10}MgNO_5]^{•2-}$ 	chemical oxidation water, TRIS buffer, pH 7.5 ESR / RT	^{14}N : 0.64 H(aromatic, 1 H): 0.05 H(aromatic, 1 H): 0.12 H(aromatic, 1 H): 0.5 H(sidechain, 2 H): 0.44 H(sidechain, 1 H): 0.42 H(sidechain, 1 H): 0.086	87Kal
$[C_{11}H_{11}MgN_2O_5]^{•2-}$ 	chemical oxidation water, TRIS buffer, pH 8.0 ESR / RT	^{14}N : 0.30 H(aromatic): 0.04 H(aromatic): 0.045 H(sidechain, 3 H): 0.48 H(sidechain, 2 H): 0.26 H(N-H): 0.30	87Kal
$[C_{13}H_{14}MgN_3O_4]^{•2-}$ 	chemical oxidation water, TRIS buffer ESR / RT	^{14}N : 0.35 H(aromatic, 2 H): 0.045 H(sidechain, 3 H): 0.48 H(sidechain, 2 H): 0.32 H(N-H): 0.35	87Kal
$[C_{13}H_{17}MgN_2O_4]^{•2-}$ 	chemical oxidation water, TRIS buffer ESR / RT	^{14}N : 0.35 H(aromatic, 2 H): 0.05 H(sidechain, 3 H): 0.48 H(sidechain, 2 H): 0.32 H(N-H): 0.35	87Kal

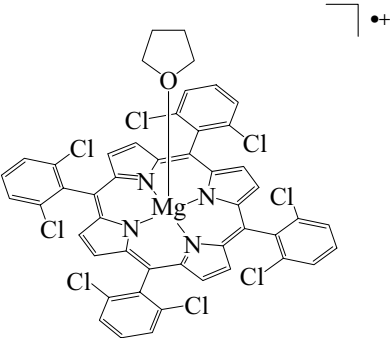
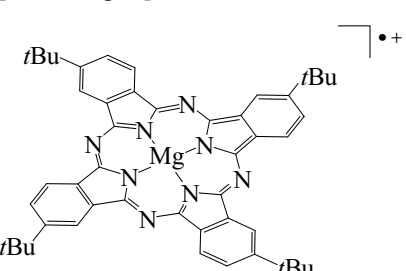
Substance	Generation / Matrix or Solvent / Method / T [K]	g -Factor / a -Value [mT]	Ref. / add. Ref.
$[C_{15}H_{17}MgN_4O_7]^{•2-}$ 	chemical oxidation water, TRIS buffer, pH 7.0 ESR / RT	^{14}N : 0.25 H(aromatic, 2 H): 0.055 H(sidechain, 3 H): 0.48 H(sidechain, 2 H): 0.22 H(N-H): 0.25	87Kal
$[C_{16}H_{14}MgNO_4]^{•2-}$ 	chemical oxidation water, TRIS buffer ESR / RT	^{14}N : 0.35 H(aromatic, 1H): 0.045 H(aromatic, 1H): 0.05 H(sidechain, 3 H): 0.48 H(sidechain, 2 H): 0.32 H(N-H): 0.35	87Kal
$[C_{18}H_{14}CaN_2O_8]^{•+}$ 	chemical reaction acetonitrile ESR / 298 electrochemistry	2.0044 ^{14}N (2 N: N(1), N(6)): 0.101 H(3): 0.150 H(8): 0.121 H(1, CH ₃): 0.091	98Ito
$[C_{18}H_{14}MgN_2O_2]^{•+}$ 	chemical reaction methanol ESR / 298	2.0029 H: 0.324 H: 0.0676 H: 0.022 H: 0.005 H(2 H): 0.0005 H(2 H): 0.0003 H(CH ₃): 0.062 H(CH ₃): 0.003 ^{14}N : 0.324 ^{14}N : 0.0264	00Ito

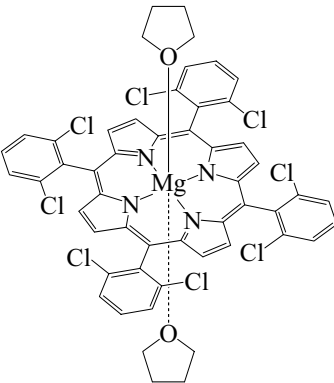
Substance	Generation / Matrix or Solvent / Method / T [K]	g -Factor / a -Value [mT]	Ref. / add. Ref.
$[\text{C}_{18}\text{H}_{21}\text{BaNO}_3]^{\bullet+}$ 	chemical reaction acetate buffer, pH 5 ESR / RT	2.0041 H(3): 0.0432 H(5): 0.3663 H(6): 0.0899 H(α 1): 0.3200 H(α 2): 0.3036	96Fer
$[\text{C}_{18}\text{H}_{21}\text{CaNO}_3]^{\bullet+}$ 	chemical reaction acetate buffer, pH 5 ESR / RT	2.0041 H(3): 0.0350 H(5): 0.3768 H(6): 0.0830 H(α 1): 0.3186 H(α 2): 0.3116	96Fer
$[\text{C}_{18}\text{H}_{21}\text{MgNO}_3]^{\bullet+}$ 	chemical reaction acetate buffer, pH 5 ESR / RT	2.0043 H(3): 0.0222 H(5): 0.3890 H(6): 0.0700 H(α 1): 0.3489 H(α 2): 0.3332	96Fer
$[\text{C}_{18}\text{H}_{21}\text{NO}_3\text{Sr}]^{\bullet+}$ 	chemical reaction acetate buffer, pH 5 ESR / RT	2.0042 H(3): 0.0392 H(5): 0.3715 H(6): 0.0872 H(α 1): 0.3106 H(α 2): 0.3062	96Fer
$[\text{C}_{21}\text{H}_{19}\text{CaN}_2\text{O}_8]^{\bullet}$ or $[\text{C}_{21}\text{H}_{20}\text{CaN}_2\text{O}_8]^{\bullet+}$  - H^+ $\rightleftharpoons$ H^+ 	chemical reaction KCl / NaOH buffer ESR / RT	species 1, 43 %: 2.00468 H(β): 0.589 H(β'): 0.162 H(8): 0.109 H(9): 0.308 species 2, 57 %: 2.00465 H(β): 0.542 H(β'): 0.165 H(8): 0.120 H(9): 0.310	91NiI

Substance	Generation / Matrix or Solvent / Method / T [K]	g -Factor / a -Value [mT]	Ref. / add. Ref.
$[C_{21}H_{19}N_2O_8Sr]^{\bullet-}$ 	autooxidation phosphate buffer, pH 12 ESR / RT	2.00466 $H(\beta)$: 0.556 $H(\beta')$: 0.167 $H(8)$: 0.130 $H(9)$: 0.300	91Nil
$[C_{22}H_{22}BaO_4]^{\bullet-}$ 	reduction with barium metal THF ESR / ENDOR / 200 electrochemistry	2.0049 $^{135,137}Ba$: 0.145 H : 0.0097 H : < 0.005	90Boc
$[C_{25}H_{42}BaNO_5]^{\bullet 2+}$ 	chemical oxidation acetonitrile ESR / 233 electrochemistry, UV-VIS, mass and resonance Raman spectroscopy	2.0045 H : 0.606	01Ito
$[C_{25}H_{42}CaNO_5]^{\bullet 2+}$ 	chemical oxidation acetonitrile ESR / 233 electrochemistry, UV-VIS, mass and resonance Raman spectroscopy	2.0043 H : 0.677	01Ito
$[C_{25}H_{42}MgNO_5]^{\bullet 2+}$ 	chemical oxidation acetonitrile ESR / 233 electrochemistry, UV-VIS, mass and resonance Raman spectroscopy	2.0039 H : 0.642	01Ito

Substance	Generation / Matrix or Solvent / Method / T [K]	g -Factor / a -Value [mT]	Ref. / add. Ref.
$[C_{25}H_{42}SrNO_5]^{\bullet 2+}$ 	chemical oxidation acetonitrile ESR / 233	2.0045 H: 0.749	01Ito
$[C_{27}H_{46}BaNO_6]^{\bullet 2+}$ 	chemical oxidation acetonitrile ESR / 233	2.0042 H: 0.630	01Ito
$[C_{27}H_{46}CaNO_6]^{\bullet 2+}$ 	chemical oxidation acetonitrile ESR / 233	2.0042 H: 0.677	01Ito
$[C_{27}H_{46}MgNO_6]^{\bullet 2+}$ 	chemical oxidation acetonitrile ESR / 233	2.0046 H: 0.606	01Ito
$[C_{27}H_{46}SrNO_6]^{\bullet 2+}$ 	chemical oxidation acetonitrile ESR / 233	2.0043 H: 0.642	01Ito

Substance	Generation / Matrix or Solvent / Method / T [K]	g -Factor / a -Value [mT]	Ref. / add. Ref.
$[C_{34}H_{32}Mg_2N_4]^{\bullet+}$ 	chemical reaction dichloroethane or THF ESR / 293	2.0035 $^{14}N(4\text{ H}): 0.24$ $H(6\text{ H}): 0.12$	95Sta1
$[C_{44}H_8F_{20}MgN_4]^{\bullet+}$ 	chemical oxidation dichloromethane ESR / 298	2.0037	95Bar
electrochemistry, UV-VIS and resonance Raman spectroscopy			
$[C_{44}H_{20}F_8MgN_4]^{\bullet+}$ 	chemical oxidation dichloromethane ESR / 298 ESR / 183 dichloromethane / methanol (5 %) ESR / 298	2.0035 $^{14}N: 0.110$ $^{14}N: 0.117$	95Bar
electrochemistry, UV-VIS and resonance Raman spectroscopy			

Substance	Generation / Matrix or Solvent / Method / T [K]	g -Factor / a -Value [mT]	Ref. / add. Ref.
$[C_{44}H_{28}MgN_4]^{•-}$ $[Mg(TPP)]^{•-}$	electrochemically generated butyronitrile ESR / 300 butyronitrile ESR / 77	$g_{av} = 2.0024$ $a_{av} = 0.093$ $g_{\perp} = 2.0000$ $g_{\parallel} = 2.0035$ $a_{\perp} = 0.057$ $a_{\parallel} = 0.11$	94Set
temperature data available from 10 K to 300 K			
$[C_{48}H_{28}Cl_8MgN_4O]^{•+}$ 	electrochemically generated dichloromethane or acetonitrile / THF 9:1 ESR / 295 dichloromethane or acetonitrile / THF 9:1 ESR / 100	$g_{av} = 1.998$ $g_{\perp} = 2.000$ $g_{\parallel} = 1.994$ $a_{\perp} = 0.143$ $a_{\parallel} = 0.143$ $g_{av} = 1.999$ $g_{\perp} = 2.004, 1.999$ $g_{\parallel} = 1.995$ $a_{\perp} = 0.041, 0.114$ $a_{\parallel} = 0.143$	96Kal
$[C_{48}H_{48}MgN_8]^{•+}$ 	electrochemically generated acetonitrile ESR / 298	2.0019	89Fre
electrochemistry, UV-VIS and NIR spectroscopy			

Substance	Generation / Matrix or Solvent / Method / T [K]	g -Factor / a -Value [mT]	Ref. / add. Ref.
$[\text{C}_{52}\text{H}_{36}\text{Cl}_8\text{MgN}_4\text{O}_2]^{\bullet+}$ 	electrochemically generated dichloromethane or acetonitrile / THF 9:1 ESR / 295 dichloromethane or acetonitrile / THF 9:1 ESR / 100	$g_{\text{av}} = 1.999$ $g_{\text{av}} = 1.999$ $g_{\perp} = 2.003$ $g_{\parallel} = 1.990$ $a_{\perp} = 0.027$ $a_{\parallel} = 0.027$	96Kal