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### Metal soaps in oil paint

*Structure, mechanisms and dynamics*

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## References

1. J. W. McBain and W. C. Sierichs. *Journal of the American Oil Chemists Society* 25, **1948**, 221–225
2. N. Stolow. *Journal of Scientific Instruments* 31, **1954**, 416–420
3. F. L. Browne. *Forest Products Journal* 6, **1956**, 312–318
4. N. Stolow. *Journal of the Oil and Colour Chemists' Association* 40, **1957**, 377–402
5. S. Toda, A. Sakai and Y. Kojima. *Spectrochimica Acta* 27A, **1971**, 581–592
6. D. P. Strommen and R. A. Plane. *The Journal of Chemical Physics* 60, **1974**, 2643–2646
7. R. C. Weast, editor. *Handbook of Chemistry and Physics*, **1983**, CRC Press, 64th edition
8. R. A. Weiss. *Journal of Applied Polymer Science* 28, **1983**, 3321–3332
9. D. J. Yarusso and S. L. Cooper. *Macromolecules* 16, **1983**, 1871–1880
10. M. S. Akanni, H. D. Burrows, H. A. Ellis, D. N. Asongwed, H. B. Babalola and P. O. Ojo. *Journal of Chemical Technology and Biotechnology* 34A, **1984**, 127–135
11. R. L. Feller, N. Stolow and E. H. Jones. *On picture varnishes and their solvents*, **1985**, The Press of Case Western Reserve University
12. D. J. Yarusso and S. L. Cooper. *Polymer* 26, **1985**, 371–378
13. H. Kühn. R. Feller, editor, *Artists' Pigments*, volume 1. Cambridge University Press, **1986**. 169–186
14. I. C. Noyan and J. B. Cohen. *Residual stress: Measurement by diffraction and interpretation*, **1987**, Springer Verlag, New York
15. J. Cesarano and I. A. Aksay. *Journal of the American Ceramic Society* 71, **1988**, 1062–1067
16. Y. S. Ding, S. R. Hubbard, K. O. Hodgson, R. A. Register and S. L. Cooper. *Macromolecules* 21, **1988**, 1698–1703
17. R. S. Williams. J. Wellheiser, editor, *Proceedings of the 14th Annual IIC-CG Conference, May 27–30, 1988*. Toronto, **1988**. 65–84
18. G. Lévai, G. Ocskay and Z. Nyitrai. *Polymer Degradation and Stability* 26, **1989**, 11–20
19. G. Lévai, G. Ocskay, Z. Nyitrai and G. Meszlényi. *Polymer Degradation and Stability* 25, **1989**, 61–72
20. D. Q. Wu, J. C. Phillips, R. D. Lundberg, W. J. Macknight and B. Chu. *Macromolecules* 22, **1989**, 992–995
21. M. M. Coleman, J. Y. Lee and P. C. Painter. *Macromolecules* 23, **1990**, 2339–2345
22. G. Hedley, M. Odlyha, A. Burnstock, J. Tillinghast and C. Husband. *Studies in Conservation* 35, **1990**, 98–105
23. C. W. McGlinchey. *MRS Proceedings* 185, **1990**, 93
24. S. Michalski. *Studies in Conservation* 35, **1990**, 85–92
25. J. Vergnaud. *Liquid transport processes in polymeric materials: modeling and industrial applications*, **1991**, Prentice-Hall, Inc.
26. M. S. Akanni, E. K. Okoh, H. D. Burrows and H. A. Ellis. *Thermochimica Acta* 208, **1992**, 1–41
27. A. Burnstock and T. Learner. *Studies in Conservation* 37, **1992**, 165–184
28. J. G. van Alsten and S. R. Lustig. *Macromolecules* 25, **1992**, 5069–5073

29. G. T. Fieldson and T. A. Barbari. *Polymer* 34, **1993**, 1146–1153
30. T. Ishioka. *Polymer Journal* 25, **1993**, 1147–1152
31. C. M. Balik and J. R. Xu. *Journal of Applied Polymer Science* 52, **1994**, 975–983
32. K. C. Farinas, L. Doh, S. Venkatraman and R. Potts. *Macromolecules* 27, **1994**, 5220–5222
33. R. L. Feller. *Accelerated aging: photochemical and thermal aspects*, **1994**, The Getty Conservation Institute, Los Angeles
34. S. Kutsumizu, Y. Hashimoto, E. Hirasawal and S. Yanot. *Macromolecules* 27, **1994**, 1781–1787
35. O. Berkesi, T. Katona, I. Dreveni, J. A. Andor and J. Mink. *Vibrational Spectroscopy* 8, **1995**, 167–174
36. T. Y. A. Chan and M. Odlyha. *Thermochimica Acta* 269–270, **1995**, 755–767
37. G. T. Fieldson and T. A. Barbari. *AIChE Journal* 41, **1995**, 795–804
38. A. Sanchez Arenas, M. V. Garcia, M. I. Redondo, J. A. R. Cheda, M. V. Roux and C. Turrion. *Liquid Crystals* 18, **1995**, 431–441
39. I. Dreveni, O. Berkesi, J. A. Andor and J. Mink. *Inorganica Chimica Acta* 249, **1996**, 17–23
40. J. G. van Alsten. *Macromolecules* 29, **1996**, 2163–2168
41. E. Ordonez and J. Twilley. *Analytical Chemistry* 69, **1997**, 416A–422A
42. S. U. Hong, T. A. Barbari and J. M. Sloan. *Journal of Polymer Science Part B: Polymer Physics* 36, **1998**, 337–344
43. P. Antony and S. K. De. *Polymer* 40, **1999**, 1487–1493
44. M. Lazzari and O. Chiantore. *Polymer Degradation and Stability* 65, **1999**, 303–313
45. J. Mallégol, J.-L. Gardette and J. Lemaire. *Journal of the American Oil Chemists' Society* 76, **1999**, 967–976
46. J. Peultier, M. François and J. Steinmetz. *Acta Crystallographica C* 55, **1999**, 2064–2065
47. L. Shen, P. E. Laibinis and T. A. Hatton. *Langmuir* 15, **1999**, 447–453
48. G. K. van der Wel and O. C. G. Adan. *Progress in Organic Coatings* 37, **1999**, 1–14
49. P. Šegedin, N. Lah, M. Zefran, I. Leban and L. Golič. *Acta Chimica Slovenica* 46, **1999**, 173–184
50. A. Degen and M. Kosec. *Journal of the European Ceramic Society* 20, **2000**, 667–673
51. T. Ishioka, K. Maeda, I. Watanabe, S. Kawauchi and M. Harada. *Spectrochimica Acta Part A* 56, **2000**, 1731–1737
52. S. Kutsumizu, K. Tadano, Y. Matsuda, M. Goto, H. Tachino, H. Hara, E. Hirasawa, H. Tagawa, Y. Muroga and S. Yano. *Macromolecules* 33, **2000**, 9044–9053
53. S. Kutsumizu, H. Tagawa, Y. Muroga and S. Yano. *Macromolecules* 33, **2000**, 3818–3827
54. F. Lacouture, J. Peultier, M. François and J. Steinmetz. *Acta Crystallographica C* 56, **2000**, 556–557
55. N. Lah, G. Rep, P. Šegedin, L. Golič and I. Leban. *Acta Crystallographica C* 56, **2000**, 642–643
56. J. Mallégol, J.-L. Gardette and J. Lemaire. *Journal of the American Oil Chemists' Society* 77, **2000**, 249–255
57. J. Mallégol, J. Lemaire and J.-L. Gardette. *Progress in Organic Coatings* 39, **2000**, 107–113
58. P. Noble, J. Wadum, K. Groen, R. Heeren and K. J. van den Berg. J. Goupy and J.-P. Mohen, editors, *Art et chimie: La couleur*. CNRS Éditions, Paris, **2000**. 126–129
59. C. Sammon, J. Yarwood and N. Everall. *Polymer* 41, **2000**, 2521–2534

- 
60. F. O. Cedeño, M. M. Prieto, A. Espina and J. R. García. *Thermochimica Acta* 369, **2001**, 39–50
  61. F. Lacouture, M. François, C. Didierjean, J.-P. Rivera, E. Rocca and J. Steinmetz. *Acta Crystallographica C* 57, **2001**, 530–531
  62. J. Malléol, L. Gonon, J. Lemaire and J. L. Gardette. *Polymer Degradation and Stability* 72, **2001**, 191–197
  63. A. Phenix and K. Sutherland. *Studies in Conservation* 46, **2001**, 47–60
  64. K. R. Sutherland. *Solvent extractable components of oil paint films*. Ph.D. thesis, University of Amsterdam, **2001**
  65. C. S. Tumosa. *WAAC Newsletter* 23, **2001**, 10–11
  66. P. Atkins and J. de Paula. *Atkins' Physical Chemistry*, **2002**, Oxford University Press, Oxford, 7th edition
  67. N. K. Tierney and R. A. Register. *Macromolecules* 35, **2002**, 2358–2364
  68. J. D. J. van den Berg. *Analytical chemical studies on traditional linseed oil paints*. Ph.D. thesis, University of Amsterdam, **2002**
  69. P. Ball. *Bright earth: Art and the invention of color*, **2003**, University of Chicago Press
  70. G. M. Foster, S. Ritchie and C. Lowe. *Journal of Thermal Analysis and Calorimetry* 73, **2003**, 119–126
  71. C. Higgit, M. Spring and D. Saunders. *National Gallery Technical Bulletin* 24, **2003**, 75–95
  72. M. J. Plater, B. De Silva, T. Gelbrich, M. B. Hursthouse, C. L. Higgitt and D. R. Saunders. *Polyhedron* 22, **2003**, 3171–3179
  73. L. Robinet and M.-C. Corbeil. *Studies in Conservation* 48, **2003**, 23–40
  74. K. Sutherland. *Studies in Conservation* 48, **2003**, 111–135
  75. J. van der Weerd, M. Geldof, L. Struik van der Loeff, R. Heeren and J. Boon. *Zeitschrift für Kunsttechnologie und Konservierung* 17, **2003**, 407–416
  76. R. Arbizzani, U. Casellato, E. Fiorin, L. Nodari, U. Russo and P. A. Vigato. *Journal of Cultural Heritage* 5, **2004**, 167–182
  77. H. D. Burrows, M. D. G. Miguel, R. P. C. Pereira, N. M. B. Proença, S. M. C. Cardoso, C. F. G. C. Geraldés, M. H. Gil and W. Brown. *Colloids and Surfaces A: Physicochemical and Engineering Aspects* 250, **2004**, 459–465
  78. M. Dias, J. Hadgraft, S. L. Raghavan and J. Tetteh. *Journal of Pharmaceutical Sciences* 93, **2004**, 186–196
  79. A. Spyros and D. Anglos. *Analytical Chemistry* 76, **2004**, 4929–4936
  80. J. D. J. van den Berg, N. D. Vermist, L. Carlyle, M. Holčapek and J. J. Boon. *Journal of Separation Science* 27, **2004**, 181–199
  81. J. van der Weerd, R. M. A. Heeren and J. J. Boon. *Studies in Conservation* 49, **2004**, 193–210
  82. A. J. J. van der Zanden and E. L. J. Goossens. *Chemical Engineering and Processing: Process Intensification* 43, **2004**, 739–743
  83. D. Atek and N. Belhaneche-Bensemra. *European Polymer Journal* 41, **2005**, 707–714
  84. D. Erhardt, C. S. Tumosa and M. F. Mecklenburg. *Studies in Conservation* 50, **2005**, 143–150
  85. K. Keune. *Binding medium, pigments and metal soaps characterised and localised in paint cross-sections*. Ph.D. thesis, University of Amsterdam, **2005**
  86. H. Li, W. Bu, W. Qi and L. Wu. *The Journal of Physical Chemistry B* 109, **2005**, 21669–21676
  87. C.-L. Lin, C.-F. Lee and W.-Y. Chiu. *Journal of Colloid and Interface Science* 291, **2005**, 411–420

88. P. Noble, A. van Loon and J. Boon. *ICOM-CC 14th Triennial Conference Preprints, The Hague, 12-16 September 2005*. James and James, London, **2005**. 496–503
89. C. S. Tumosa, D. Erhardt, M. F. Mecklenburg and X. Su. *Materials Research Society Symposium Proceedings*, volume 852, **2005**. 25–31
90. J. van der Weerd, A. van Loon and J. J. Boon. *Studies in Conservation* **50**, **2005**, 3–22
91. R. van Gorkum and E. Bouwman. *Coordination Chemistry Reviews* **249**, **2005**, 1709–1728
92. S. Barman and S. Vasudevan. *Journal of Physical Chemistry B* **110**, **2006**, 22407–22414
93. J. J. Boon, F. Hoogland and K. Keune. *AIC annual meeting*. Providence, Rhode Island, **2006**. 18–25
94. M. Cotte, E. Checroun, J. Susini, P. Dumas, P. Tchoreloff, M. Besnard and P. Walter. *Talanta* **70**, **2006**, 1136–1142
95. O. S. Fleming, K. L. A. Chan and S. G. Kazarian. *Polymer* **47**, **2006**, 4649–4658
96. C. Himawan, V. M. Starov and A. G. F. Stapley. *Advances in Colloid and Interface Science* **122**, **2006**, 3–33
97. E. Moreno, R. Cordobilla, T. Calvet, F. J. Lahoz and A. I. Balana. *Acta Crystallographica C* **62**, **2006**, 0129–0131
98. E. Rocca, C. Caillet, A. Mesbah, M. François and J. Steinmetz. *Chemical Materials* **18**, **2006**, 6186–6193
99. K. Wakabayashi and R. A. Register. *Polymer* **47**, **2006**, 2874–2883
100. S. Barman and S. Vasudevan. *Journal of Physical Chemistry B* **111**, **2007**, 5212–5217
101. N. M. Benetatos, C. D. Chan and K. I. Winey. *Macromolecules* **40**, **2007**, 1081–1088
102. M. Cotte, E. Checroun, J. Susini and P. Walter. *Applied Physics A* **89**, **2007**, 841–848
103. A. Doménech-Carbó, M. T. Doménech-Carbó and X. Mas-Barberá. *Talanta* **71**, **2007**, 1569–1579
104. T. O. Egbuchunam, D. Balköse and F. E. Okieimen. *Polymer Degradation and Stability* **92**, **2007**, 1572–1582
105. K. Keune and J. J. Boon. *Studies in Conservation* **52**, **2007**, 161–176
106. K. Keune, K. Kirsch and J. J. Boon. H. M. Parkin, editor, *AIC Paintings Working Group Meeting 2006: Postprints*, volume 19. Thomson-Shore, Dexter, **2007**. 145–149
107. F. J. Martínez Casado, M. V. García Pérez, M. I. Redondo Yélamos, J. A. Rodríguez Cheda, A. Sánchez Arenas, S. López-Andrés, J. García-Barriocanal, A. Rivera, C. León and J. Santamaría. *Journal of Physical Chemistry C* **111**, **2007**, 6826–6831
108. S. Mishra, S. Daniele and L. G. Hubert-Pfalzgraf. *Chemical Society Reviews* **36**, **2007**, 1770–1787
109. B. Ormsby, G. Foster, T. Learner, S. Ritchie and M. Schilling. *Journal of Thermal Analysis and Calorimetry* **90**, **2007**, 503–508
110. R. A. Taylor and H. A. Ellis. *Spectrochimica Acta Part A* **68**, **2007**, 99–107
111. V. Zelenák, Z. Vargová and K. Györyová. *Spectrochimica Acta Part A* **66**, **2007**, 262–272
112. Douma, M., curator. <http://www.webexhibits.org/pigments/intro/history.html>, **2008**. Accessed: 03-11-2016
113. D. Fragiadakis, S. Dou, R. H. Colby and J. Runt. *Macromolecules* **41**, **2008**, 5723–5728
114. B. P. Grady. *Polymer Engineering & Science* **48**, **2008**, 1029–1051
115. T. Iwasaki, Y. Maegawa, Y. Hayashi, T. Ohshima and K. Mashima. *Journal of Organic Chemistry* **73**, **2008**,

- 
116. R. Mazzeo, S. Prati, M. Quaranta, E. Joseph, E. Kendix and M. Galeotti. *Analytical and Bioanalytical Chemistry* 392, **2008**, 65–76
117. G. M. Sheldrick. *SADABS and TWINABS*. Universität Göttingen, Germany, **2008**
118. M. Spring, C. Ricci, D. A. Peggie and S. G. Kazarian. *Analytical and Bioanalytical Chemistry* 392, **2008**, 37–45
119. A. van Loon. *Color changes and chemical reactivity in seventeenth-century oil paintings*. Ph.D. thesis, University of Amsterdam, **2008**
120. G. Gautier, A. Bezur, K. Muir, F. Casadio and I. Fiedler. *Applied Spectroscopy* 63, **2009**, 597–603
121. A. Lenz, L. Selegård, F. Söderlind, A. Larsson, P. O. Holtz, K. Uvdal, L. Ojamäe and P.-O. Käll. *Journal of Physical Chemistry C* 113, **2009**, 17332–17341
122. A. Phenix. *AIC Paintings Specialty Group Postprints* 22, **2009**, 72–89
123. R. A. Taylor, H. A. Ellis and P. T. Maragh. *Journal of Molecular Structure* 921, **2009**, 118–125
124. A. van Loon. *kM Materiaaltechnische informatie over kunst en vormgeving* 72, **2009**, 10–13
125. M. E. Seitz, C. D. Chan, K. L. Opper, T. W. Baughman, K. B. Wagener and K. I. Winey. *Journal of the American Chemical Society* 132, **2010**, 8165–8174
126. K. Wakabayashi and R. A. Register. *Industrial & Engineering Chemistry Research* 49, **2010**, 11906–11913
127. A. M. Castagna, W. Wang, K. I. Winey and J. Runt. *Macromolecules* 44, **2011**, 2791–2798
128. W. Faubel, R. Simon, S. Heissler, F. Friedrich, P. G. Weidler, H. Becker and W. Schmidt. *Journal of Analytical Atomic Spectrometry* 26, **2011**, 942
129. E. S. B. Ferreira, J. J. Boon, M. Stampanoni and F. Marone. *ICOM-CC 16th Triennial Conference Preprints, Lisbon, 19–23 September 2011*. James & James, **2011**
130. K. Keune, A. van Loon and J. J. Boon. *Microscopy and Microanalysis* 17, **2011**, 696–701
131. A. Mesbah, S. Jacques, E. Rocca, M. François and J. Steinmetz. *European Journal of Inorganic Chemistry* 1315–1321
132. P. N. Nelson, H. A. Ellis and R. A. Taylor. *Journal of Molecular Structure* 986, **2011**, 10–15
133. J. Sanyova, S. Cersoy, P. Richardin, O. Laprèvote, P. Walter and A. Brunelle. *Analytical Chemistry* 83, **2011**, 753–760
134. P. Taheri, T. Hauffman, J. M. C. Mol, J. R. Flores, F. Hannour, J. H. W. de Wit and H. Terryn. *Journal of Physical Chemistry C* 115, **2011**, 17054–17067
135. I. Bonaduce, L. Carlyle, M. P. Colombini, C. Duce, C. Ferrari, E. Ribechini, P. Selleri and M. R. Tiné. *PLoS ONE* 7, **2012**, e49333
136. C. Clementi, F. Rosi, A. Romani, R. Vivani, B. G. Brunetti and C. Miliani. *Applied Spectroscopy* 66, **2012**, 1233–1241
137. S. Hackney, J. Reifsnnyder, M. te Marvelde and M. Scharff. J. Hill Stoner and R. Rushfield, editors, *Conservation of Easel Paintings*, 415–452. Routledge, London, **2012**
138. L. M. Hall, M. J. Stevens and A. L. Frischknecht. *Macromolecules* 45, **2012**, 8097–8108
139. K.-J. Lin and J. K. Maranas. *Macromolecules* 45, **2012**, 6230–6240
140. G. Osmond. *AICCM Bulletin* 33, **2012**, 20–29
141. G. Osmond, J. J. Boon, L. Puskar and J. Drennan. *Applied Spectroscopy* 66, **2012**, 1136–1144

142. G. M. Sheldrick. *SHELXT*. Universität Göttingen, Germany, **2012**
143. M. D. Soucek, T. Khattab and J. Wu. *Progress in Organic Coatings* 73, **2012**, 435–454
144. G. J. Tudryn, M. V. O'Reilly, S. Dou, D. R. King, K. I. Winey, J. Runt and R. H. Colby. *Macromolecules* 45, **2012**, 3962–3973
145. A. van Loon, P. Noble and A. Burnstock. J. H. Stoner and R. Rushfield, editors, *Conservation of Easel Paintings*, 214–241. Routledge, London, **2012**
146. M. F. Mecklenburg, A. E. Charola and R. J. Koestler, editors, *New insights into the cleaning of paintings*. Smithsonian Institution Scholarly Press, Washington D.C., **2013**
147. D. S. Bolintineanu, M. J. Stevens and A. L. Frischknecht. *Macromolecules* 46, **2013**, 5381–5392
148. Z. Kaszowska, K. Malek, M. Pańczyk and A. Mikołajska. *Vibrational Spectroscopy* 65, **2013**, 1–11
149. A. Labrador, Y. Cerenius, C. Svensson, K. Theodor and T. Plivelic. *Journal of Physics: Conference Series* 425, **2013**, 072019
150. M. F. Mecklenburg, C. S. Tumosa and E. P. Vicenzi. M. Mecklenburg, A. Charola and R. Koestler, editors, *New Insights into the Cleaning of Paintings*, volume 3. Smithsonian Institution Scholarly Press, Washington D.C., **2013**. 59–67
151. L. Monico, K. Janssens, C. Miliani, G. van der Snickt, B. G. Brunetti, M. Cestelli Guidi, M. Radepon, M. Cotte, M. Vagnini, F. Vanmeert, G. Falkenberg, A. Abakumov, Y. Lu, H. Tian, J. Verbeeck, M. Radepon, M. Cotte, E. Hendriks, M. Geldof, L. van der Loeff, J. Salvant and M. Menu. *Analytical Chemistry* 85, **2013**, 860–867
152. P. Musto, D. Larobina, S. Cotugno, P. Straffi, G. Di Florio and G. Mensitieri. *Polymer* 54, **2013**, 685–693
153. A. Phenix. *Smithsonian Contributions to Museum Conservation November 2013*, **2013**, 69
154. D. Rogala, S. Lake, C. Maines and M. Mecklenburg. *Journal of the American Institute for Conservation* 49, **2013**, 96–113
155. P. Taheri, M. Ghaffari, J. R. Flores, F. Hannour, J. H. W. De Wit, J. M. C. Mol and H. Terryn. *Journal of Physical Chemistry C* 117, **2013**, 2780–2792
156. M. Vellekoop, M. Geldof, E. Hendriks, L. Jansen and A. de Tagle, editors. *Van Gogh's Studio Practice*, **2013**, Yale University Press
157. R. Grayburn, M. Dowsett, M. de Keersmaecker, E. Westenbrink, J. A. Covington, J. B. Crawford, M. Hand, D. Walker, P. A. Thomas, D. Banerjee and A. Adriaens. *Corrosion Science* 82, **2014**, 280–289
158. K. Helwig, J. Poulin, M.-C. Corbeil, E. Moffatt and D. Duguay. K. J. van den Berg, editor, *Issues in Contemporary Oil Paint*. Springer, **2014**. 167–184
159. J. J. Hermans and P. D. Iedema. *Journal of Molecular Structure* 1070, **2014**, 43–44
160. J. J. Hermans, K. Keune, A. van Loon, R. W. Corkery and P. D. Iedema. *Polyhedron* 81, **2014**, 335–340
161. J. J. Hermans, K. Keune, A. van Loon, M. J. N. Stols-Witlox, R. W. Corkery and P. D. Iedema. J. Bridgland, editor, *ICOM-CC 17th Triennial Conference Preprints, Melbourne, 15–19 September 2014*. International Council of Museums, **2014**. art. 1603
162. P. D. Iedema, J. J. Hermans, K. Keune, A. van Loon and M. J. N. Stols-Witlox. J. Bridgland, editor, *ICOM-CC 17th Triennial Conference Preprints, Melbourne, 15–19 September 2014*. International Council of Museums, Paris, **2014**. art. 1604

- 
163. H. Keles, A. Naylor, F. Clegg and C. Sammon. *Analyst* 139, 2014, 2355–2369
164. K. Keune and G. Boevé-Jones. K. J. van den Berg et al., editors, *Issues in Contemporary Oil Paint*. Springer International Publishing, 2014. 283–294
165. F. J. Martínez-Casado, M. Ramos-Riesco, J. A. Rodríguez-Cheda, F. Cucinotta, A. Fernández-Martínez, L. Garrido, E. Matesanz and L. Marchese. *Journal of Materials Chemistry C* 2, 2014, 9489–9496
166. G. Osmond, B. Ebert and J. Drennan. *AICCM Bulletin* 34, 2014, 4–14
167. V. Otero, D. Sanches, C. Montagner, M. Vilarigues, L. Carlyle, J. A. Lopes and M. J. Melo. *Journal of Raman Spectroscopy* 45, 2014, 1197–1206
168. S. Zumbühl. *Studies in Conservation* 59, 2014, 24–37
169. J. Catalano, A. Murphy, Y. Yao, G. P. A. Yap, N. Zumbulyadis, S. A. Centeno and C. Dybowski. *Dalton Transactions* 44, 2015, 2340–2347
170. M. De Keersmaecker, O. V. D. Berg, K. Verbeken, D. Depla and A. Adriaens. *Journal of the Electrochemical Society* 162, 2015, C167–C179
171. J. J. Hermans, K. Keune, A. van Loon and P. D. Iedema. *Journal of Analytical Atomic Spectrometry* 30, 2015, 1600–1608
172. Y. Ikeda, Y. Yasuda, T. Ohashi, H. Yokohama, S. Minoda, H. Kobayashi and T. Honma. *Macromolecules* 48, 2015, 462–475
173. G. M. Sheldrick. *Acta Crystallographica A* 17, 2015, 3–8
174. L. de Viguerie, P. A. Payard, E. Portero, P. Walter and M. Cotte. *Progress in Organic Coatings* 93, 2016, 46–60
175. J. J. Hermans, K. Keune, A. van Loon and P. D. Iedema. *RSC Advances* 6, 2016, 93363–93369
176. J. J. Hermans, K. Keune, A. van Loon and P. D. Iedema. *Physical Chemistry Chemical Physics* 18, 2016, 10896–10905
177. I. Kryven, J. Duivenvoorden, J. J. Hermans and P. D. Iedema. *Macromolecular Theory and Simulations* 25, 2016, 449–465
178. M. G. MacDonald, M. R. Palmer, M. R. Suchomel and B. H. Berrie. *ACS Omega* 1, 2016, 344–350
179. L. Monico, K. Janssens, M. Cotte, L. Sorace, F. Vanmeert, B. G. Brunetti and C. Miliani. *Microchemical Journal* 124, 2016, 272–282
180. M. Cotte, E. Checroun, W. de Nolf, Y. Taniguchi, L. de Viguerie, M. Burghammer, P. Walter, C. Rivard, M. Salomé, K. Janssens and J. Susini. *Studies in Conservation* 62, 2017, 2–23
181. L. E. Raven, M. Bisschoff, M. Leeuwenstein, M. Geldof, J. J. Hermans, M. J. N. Stols-Witlox and K. Keune. F. Casadio et al., editors, *Metal Soaps in Art: Conservation & Restoration*. Springer, 2017. Accepted
182. M. Thoury, A. van Loon, K. Keune, M. Réfrégiers, J. J. Hermans and B. H. Berrie. F. Casadio et al., editors, *Metal Soaps in Art: Conservation & Restoration*. Springer, 2017. Accepted