

## **Chapters in books**

CARLSSON D.J., CHMELA Š.,

Polymers and High Energy Irradiation: Degradation and Stabilization, Mech. Polym. Deg. Stab., 1990, 109-133, Ed. Scott G. Elsevier, London, UK.

CARLSSON D.J., CHMELA Š., LACOSTE J.

Stabilization of Polyolefins to Gamma Irradiation, ACS Symposium Series 475, Radiation Effects on Polymer, p. 432-441, Ed. R.L. Clough and S.W. Shalaby, ACS, Washington, DC 1991.

CHMELA Š., HRDLOVIČ P.

Reactive Oligomeric Light Stabilizers, *Adv. Chem. Ser.* 1996, **249**, 473-482. "Polymer Durability" Ed. R.L. Clough, N.C Billingham and K.T. Gillen, ACS Publisher.

LACOSTE J., CHMELA Š., PELLET J., PILICHOWSKI J.F.

Grafting of Hindered Amine Groups on EPDM and Polyoctenamer via Photo-Hydroperoxidation.

ACS book, Advances in Chemistry "Polymer Modifications", Ed. G. Swift, C.E. Karaher and C.N. Bowman, Publisher Plenum Press 1997, p. 11-20.

MATISOVÁ-RYCHLÁ L., RYCHLÝ J., DANKO M., CHMELA Š., HRDLOVIČ, P.

On the stabilizing effect of sterically hindered amines and nitroxide radicals in thermal and photo-oxidation of polypropylene. In REICHERT, T. Ed. Book of Natural and Artificial Ageing of Polymers, 3<sup>rd</sup> European Weathering Symposium, CEES Publication No. 8, September 12-14, 2007, Krakow. Poland, p. 141-152.

## **List of papers**

1. LUKÁČ I., CHMELA Š., HRDLOVIČ P.  
Preparation and Photolysis of Poly-4-acetylacrylophenone and its Copolymers with Styrene and Methyl Methacrylate.  
*J. Polym. Sci., Polym. Chem. Ed.*, 1979, **17**, 2893-2902.
2. LUKÁČ I., CHMELA Š., HRDLOVIČ P.  
The Influence of Alkyl Substituent on Norrish Type II Reactions for Poly-4-alkyl- acrylophenones.  
*J. Photochem.*, 1979, **11**, 301-311.
3. LUKÁČ I., CHMELA Š., HRDLOVIČ P.  
Influence of alkyl substituents of Norrish type II reaction for poly-4- alkylacrylophenones.  
*Energy* (Oxford), 1979, 1, pp. 176-182.
4. CHMELA Š., HRDLOVIČ P.  
Quenching of Aromatic Triplet by Monomeric and Polymeric Radicals in Polymer Film at 77 K.  
*Chem. Papers*, 1984, **38**, 199-215.
5. CHMELA Š., HRDLOVIČ P., MAŇÁSEK Z.  
Stabilizing Effect of Monomers, Homopolymers and Copolymers of Vinyl Derivatives of Sterically Hindered Amines on the Photo-Oxidation of Polypropylene.  
*Polym. Deg. Stab.*, 1985, **11**, 233-241.
6. CHMELA Š., HRDLOVIČ P.  
The Inhibited Photo-Oxidation of Polystyrene and Styrene-HALS Copolymers.  
*Polym. Deg. Stab.*, 1985, **11**, 339-348.
7. CARLSSON D.J., BAZAN G., CHMELA Š., WILES D.M., RUSSEL K.E.  
Oxidation of Solid Polyethylene Films: Effects of Backbone Branching.  
*Polym. Deg. Stab.*, 1987, **19**, 195-206.
8. CARLSSON D.J., COLIN G., CHMELA Š., WILES D.M.,

- Oxidation Behaviour of High Strength Chain Extended Polyethylene Fibers.  
*Textile Res. J.*, 1988, **58**, 520-526.
9. BECKER R.F., CARLSSON D.J., COOK J.M., CHMELA Š.  
Stabilization of Polypropylene to  $\gamma$ -Initiated Oxidation.  
*Polym. Deg. Stab.*, 1988, **22**, 313-323.
10. CARLSSON D.J., CHMELA Š., WILES D.M.  
Chemical and Spectroscopic Methods for Investigating Polymer Degradation and Stabilization: Oxydative Degradation of Hydrogenated Nitrile Rubber.  
*Makromol. Chem., Macromol. Symp.*, 1989, **27**, 139-153.
11. CHMELA Š., CARLSSON D.J., WILES D.M.  
Photo-stabilizing Efficiency of N-Substituted Hindered Amines in Polypropylene: Effects of Processing Conditions and Exposure to a Protonic Acid.  
*J. Polym. Deg. Stab.*, 1989, **26**, 185-195.
12. CHMELA Š., HRDLOVIČ P.  
The Influence of Substituents on Photostabilizing Efficiency of Hindered Amines in Polypropylene.  
*Polym. Deg. Stab.*, 1990, **27**, 159-167.
13. HRDLOVIČ P., CHMELA Š.  
Oligomeric Stabilizers of HALS Type: Influence of Polarity and Molecular Mass on Efficiency.  
*Intern. J. Polym. Mater.*, 1990, **13**, 249-258.
14. CARLSSON D.J., CHMELA Š., LACOSTE J.  
On the Structure and Yields of the First Peroxyl Radicals in  $\gamma$ -Irradiated Polyolefins.  
*Macromolecules*, 1990, **23**, 4934-4938.
15. CARLSSON D.J., CHMELA Š., WILES D.M.  
Oxidative Degradation of Ethylene-Vinyl Alcohol Copolymers.  
*Polym. Deg. Stab.*, 1991, **31**, 255-267.
16. CHMELA Š., HRDLOVIČ P.  
Degradable Copolymers of Hindered Amine Light Stabilizers Derivatives and Their Stabilizing Efficiency in Polypropylene.  
*J. Appl. Polym. Sci.*, 1992, **44**, 177-179.
17. KYSEL' O., CHMELA Š., HLOUŠKOVÁ Z.  
Characterization of the Photooxidation of Isotactic Polypropylene by Nitroxyl Spin Probe.  
*Makromol. Chem., Rapid. Commun.*, 1993, **14**, 45-49.
18. CHMELA Š., HABICHER W.D., HÄHNER U., HRDLOVIČ P.  
HALS-Phosphite Combination as Light and Heat Stabilizers for Polypropylene.  
*Polym. Deg. Stab.*, 1993, **39**, 367-371.
19. HÄHNER U., HABICHER W.D., CHMELA Š.  
Synthesis and Antioxidative Efficiency of Organic Phosphite and Phosphonites with 2,2,6,6-Tetramethylpiperidin-4-yl Groups.  
*Polym. Deg. Stab.*, 1993, **41**, 197-203.
20. CHMELA Š., HRDLOVIČ P.  
Light Stabilizers of HALS Type with Regulated Molecular Mass.  
*Polym. Deg. Stab.*, 1993, **42**, 55-60.
21. CHMELA Š., TEISSEDRE G., LACOSTE J.  
Photogenerated Hydroperoxides of EPDM Rubbers and Their Characterization.  
*J. Polym. Sci., Part A: Polym. Chem.*, 1995, **33**, 743-749.

21. HRDLOVIČ P., HORINOVÁ L., CHMELA Š.  
Spectral Properties of Ionic Derivatives of Pyrene and Their Aggregates with Anionic Surfactant and Polyelectrolite.  
*Can. J. Chem.*, 1995, **73**, 1948-1953.
22. LACOSTE J., VAILLANT D., CHMELA Š.  
Gamma, Photo and Thermally Initiated Oxidation of Polyolefins Used in Packaging.  
*J. Polym. Eng.*, 1996, **15**, 139-152.
23. CHMELA Š., TEISSEDRE G., LACOSTE J.  
Photografting on Ethylene-Propylene-5-Ethyldene-2-norbornene Rubber Initiated by Photogenerated Hydroperoxides.  
*Macromolecules*, 1996, **29**, 3055-3059.
24. TEISSEDRE G., PILICHOWSKI J.F., CHMELA Š., LACOSTE J.  
Ageing of EPDM. I. Photo and Thermal Stability of EPDM Hydroperoxides.  
*Polym. Deg. Stab.*, 1996, **53**, 207-215.
25. HRDLOVIČ P., CHMELA Š., BÚCSIOVÁ L.  
Spectral Characteristics of Bifunctional Fluorescence Probes Based on Naphthalene: Comparison in Solution and Polymer Matrix.  
*Chemical Papers*, 1996, **50**, 271-278.
26. CHMELA Š., HRDLOVIČ P  
Reactive oligomeric light stabilizers.  
*Advances in Chemistry Series*, 1996, **249**, pp. 469-471.
27. HRDLOVIČ P., CHMELA Š.  
Spectral Characteristics of Multifunctional Probes Based on Pyrene in Solution and Polymer Matrix.  
*J. Photochem. Photobiol. A: Chem.*, 1997, **105**, 83-88.
28. CHMELA Š., PILICHOWSKI J.F., LACOSTE J.  
Photohydroperoxidation and Grafting of Polyoctenamer. Access to New Polymeric Hindered Amine Stabilizers  
*J. Polym. Sci., Part A: Polym. Chem.*, 1997, **35**, 2599-2605.
29. HRDLOVIČ P., CHMELA Š., DANKO M.  
Spectral Characteristics and Photochemical Stability of Fluorescence Probes Based on 1,8-Naphthaleneimide in Solution and in Polymer Matrix.  
*J. Photochem. Photobiol. A: Chem.*, 1998, **112**, 197-203.
30. LUKÁČ I., CHMELA Š., PILICHOWSKI J.F., LACOSTE J.  
Brominated Polyethylene. Synthesis, Photooxidation and Use as the Intermediate for the Preparation of New Polymeric Stabilizers.  
*J. Macromol. Sci. – Pure Appl. Chem.*, 1998, **A35**, 1337-1348.
31. HRDLOVIČ P., CHMELA Š.  
Spectral and Photostabilizing Characteristics of Adducts of Aromatic Hydrocarbons and Hindered Amine Stabilizers.  
*Polym. Deg. Stab.*, 1998, **61**, 177-182.
32. HRDLOVIČ P., CHMELA Š.  
Spectral Characteristics of Probes Based on Ionic Derivatives of Pyrene in Polar Polymer Matrices.  
*J. Photochem. Photobiol. A: Chem.*, 1998, **118**, 137-142.
33. CHMELA Š., DANKO M. HRDLOVIČ P.  
Preparation, Photochemical Stability and Photostabilizing Efficiency of Adducts of 1,8-Naphthaleneimide and Hindered Amine Stabilizers in Polymer Matrices.  
*Polym. Deg. Stab.*, 1999, **63**, 159-164.

34. PAWELKE B., KÓSA CS., CHMELA Š., HABICHER W.D.  
New Stabilizers for Polymers on the Base of Isophorone Diisocyanate.  
*Polym. Deg. Stab.*, 2000, **67**, 1-6.
35. LACOSTE J., CHMELA Š., PILICOVSKI J.F., LUKÁČ I.  
Chemisches und photochemisches Aufpropfen von sterisch gehinderten Aminen auf Elastomere. GAK  
*Gummi, Fasern, Kunststoffe-Fachmagazin für die Polymerindustrie*, 2000, **53** (9), 644-653.
36. BÚCSIOVÁ L., CHMELA Š., HRDLOVIČ P.  
Preparation, Photochemical Stability and Photostabilizing Efficiency of Adducts of Pyrene and Hindered  
Amine Stabilisers in iPP Matrix.  
*Polym. Deg. Stab.*, 2001, **71**, 135-145.
37. CHMELA Š., LAJOIE P., HRDLOVIČ P., LACOSTE J.  
Combined Oligomeric Light and Heat Stabilisers.  
*Polym. Deg. Stab.*, 2001, **71**, 171-177.
38. BÚCSIOVÁ L., HRDLOVIČ P., CHMELA Š.  
Spectral Characteristics of Fluorescence Probes Based on Pyrene in Solution and in Polymer Matrix.  
*J. Photochem. Photobiol. A: Chem.*, 2001, **143**, 59-68.
39. HABICHER W.D., PAWELKE B., BAUER I., YAMAGUCHI K., CHMELA Š., POSPÍŠIL J.  
Synthesis and antioxidative properties of novel multifunctional stabilizers.  
*Journal of Vinyl & Additive Technology* 2001, **7**, 4-18.
40. BÚCSIOVÁ L., BÚCSI A., HRDLOVIČ P., CHMELA Š.  
Characterization of stable nitroxide radicals on the basis of adduct chromophore- hindered amine utilizing  
EPR spectroscopy in solution and polymer matrix.  
*Chemical Papers*, 2002, **56**, 275-281.
41. HRDLOVIČ P., DANKO M., CHMELA Š.  
Preparation, spectral characteristics and photolytic stability of anthracene-hindered amine probes: Influence  
of the medium.  
*J. Photochem. Photobiol. A: Chem.*, 2002, **149**, 207-216.
42. DANKO M., CHMELA Š., HRDLOVIČ P.  
Photochemical stability and photostabilizing efficiency of anthracene/hindered amine stabilizers in polymer  
matrices.  
*Polym. Deg. Stab.*, 2003, **79**, 333-343.
42. MOSNÁČEK J., CHMELA Š., THEUMER G., HABICHER W.D., HRDLOVIČ P.  
New combined phenol/hindered amine photo- and thermal – stabilizers based on toluene-2,4-diisocyanate.  
*Polym. Deg. Stab.*, 2003, **80**, 113-126.
43. KÓSA CS., CHMELA Š., PAWELKE B., THEUMER G., HABICHER W.D.  
New combined hindered phenol/hindered amine stabilizers for polymers based on diphenylmethane-4,4'-  
diisocyanate.  
*Polym. Deg. Stab.* 2003, **81**, 453-461.
44. HRDLOVIČ P., KOLLÁR J., CHMELA Š.  
Novel fluorescence probes based on pyrene and piperazine; spectral properties in solution and in polymer  
matrices.  
*J. Photochem. Photobiol. A: Chem.*, 2004, **163**, 289-296.
45. KÓSA CS., CHMELA Š., THEUMER G., HABICHER W.D.  
New combined phenol/hindered amine stabilizers for polymers based on diphenylmethane-4,4'-diisocyanate  
and dicyclohexylmethane-4,4'-diisocyanate.  
*Polym. Deg. Stab.* 2004, **86**, 391-400.

46. KOLLÁR J., HRDLOVIČ P., CHMELA Š., SARAKHA M., GUYOT G.  
Synthesis and transient absorption spectra of derivatives of 1,8-naphthalic anhydrides and naphthalimides containing 2,2,6,6-tetramethylpiperidine; triplet route of deactivation.  
*J. Photochem. Photobiol. A: Chem.*, 2005, **170**, 151-159.
47. KOLLÁR J., HRDLOVIČ P., CHMELA Š., SARAKHA M., GUYOT G.  
Spectral properties of probes based on pyrene and piperazine: the triplet and singlet route of deactivation.  
*J. Photochem. Photobiol. A: Chem.*, 2005, **171**, 27-38.
48. CHMELA Š., KOLLÁR J., HRDLOVIČ P., GUYOT G., SARAKHA M.  
Preparation and photophysics of 2-(1-pyrenyl)acrylic acid and its methyl and 2',2',6',6'-tetramethyl-4'-piperidyl esters.  
*Journal of Fluorescence*, 2005, **15** (3), 243-253.
49. CHMELA Š., KLEINOVÁ A., FIEDLEROVÁ A., BORSIG E., KAEMPFER D., THOMANN R., MÜLHAUPT R.  
Photo-oxidation of sPP/Organoclay nanocomposites.  
*Journal of Macromolecular Science. Part A: Pure and Applied Chemistry*. 2005, **42**, 821–829.
50. DANKO M., CHMELA Š., HRDLOVIČ P.  
Synthesis, photochemical stability and photo-stabilizing efficiency of probes based on benzothioxanthene chromophore and hindered amine stabilizer.  
*Polymer Degradation and Stability*, 2006, **91** (5), 1045-1051.
51. HUSÁR B., COMMEREUC S., LUKÁČ I., CHMELA Š., NEDELEC J.M., BABA M.  
Carbon Tetrachloride as Thermoporometry Liquid-probe to Study the Cross-linking of Styrene Copolymer Networks.  
*J. Phys. Chem. B*. 2006, **110** (11), 5315-5320.
52. KÓSA CS., MOSNÁČEK J., LUKÁČ I., HRDLOVIČ P., CHMELA Š., HABICHER W.D.  
Photooxidation of benzil groups in the presence of hindered amine stabilizers in the polystyrene film.  
*J. Appl. Polym. Sci.* 2006, **100** (6), 4420-4428.
53. CHMELA Š., FIEDLEROVÁ A., BORSIG E., ERLER J., MÜLHAUPT R.  
Photo-oxidation and stabilization of sPP and iPP/Boehmite-Disperal nanocomposites. *Journal of Macromolecular Science. Part A: Pure and Applied Chemistry* 2007, **44** (7-9), 1027-1034.
54. KOLLÁR J., HRDLOVIČ P., CHMELA Š.  
Synthesis and spectral characteristics of di-substituted 1,8-naphthalimides: Bi-radical formation.  
*Journal of Photochemistry and Photobiology A: Chemistry* 2008, **195** (1): 64-71.
55. BÚCSIOVÁ L., YIN M., CHMELA Š., HABICHER WD.  
Nitroxide-mediated living radical polymerization of styrene with fluorescent initiator. *Journal of Macromolecular Science, Part A: Pure and Applied Chemistry* 2008, **45** (9): 761-768.
56. HRDLOVIČ P., CHMELA Š., DANKO M., SARAKHA M., GUYOT G.  
Spectral Properties of Probes Containing Benzothioxanthene Chromophore Linked with Hindered Amine in Solution and in Polymer Matrix.  
*Journal of Fluorescence*, 2008, **18** (3), 393-402.
57. KOLLÁR J., HRDLOVIČ P., CHMELA Š.  
Synthesis and spectral characteristics of substituted 1,8-naphthalimides: Intramolecular quenching by mono-nitroxides. *Journal of Photochemistry and Photobiology A: Chemistry* 2009, **204**, p. 191–199.
58. CHMELA Š., HRČKOVÁ L.  
Nitroxide mediaed styrene radical polymerization using a fluorescence marked mediator.  
*European Polymer Journal* 2009, **45**, p. 2580–2586.

59. MARCINČIN A., HRICOVÁ M., UKHELYIOVÁ A., BREJKA O., MICHLÍK P., DULÍKOVÁ M., STRECKÁ Z., CHMELA Š.  
Effect of Inorganic Nano-fillers on the UV Barrier Properties, Photo and Thermal Degradation of Polypropylene Fibres. *FIBRES & TEXTILES in Eastern Europe* 2009, **17**, p 29-35.
60. KOLLÁR J., HRDLOVIČ P., CHMELA Š.  
Spectral properties of bichromophoric pyrene derivatives: Monomer vs. excimer fluorescence. *Journal of Photochemistry and Photobiology A: Chemistry* 2010, **214**, p. 33–39.
61. HUSÁR B., COMMEREUC S., CHMELA Š., VERNEY V.  
Characterization of networks from photoreactive copolymers: an attempt to correlate chemical composition to network structure. *Polymer International* 2010, **59**, 1563–1570.
62. PILICHOWSKI J.F., MOREL M., TAMBOURA F., CHMELA Š., BABA M., LACOSTE J.  
Crosslinking and ageing of  $^{13}\text{C}$  labelled polyisoprene part 1: Synthesis and polymerisation of 4- $^{13}\text{C}$ -isoprene. *Polymer Degradation and Stability*, 2010, **95**, 1575-1580.
63. HUSÁR B., LUKÁČ I., CHMELA Š., CANET J.L., TROIN Y.  
Synthesis of 1-phenylbut-3-ene-1,2-dione and its attempted radical polymerization. *Chemical Papers* 2010, **64**, 499-503.
64. LUKEŠ V., ILČIN M., KOLLÁR J., HRDLOVIČ P., CHMELA Š.  
On the geometrical structure and spectral properties of pyrene monomer and sterically constrained intramolecular pyrene dimers. *Chemical Physics* 2010, **377**, 123–131.
65. CHMELA Š., FIEDLEROVÁ A., JANIGOVÁ I., NOVÁK I., BORSIG E.  
Grafting of iPP powder with methacrylate monomers in water medium. *Journal of Applied Polymer Science* 2011, **119**, 2750-2758