

6. REFERENCES

6. References

Aqualon, Ethylcellulose - physical and chemical properties. Product information no:250-42A, HERCULES Inc.-Aqualon Division (2002).

Argos, P., Pedersen, K., Marks, D.M. and Larkins, B.A., A structural model for maize zein proteins, *Journal of Biological Chemistry* (1982) 257 (17), 9984-9990.

ASTM D882-01, Standard test method for tensile properties of thin plastic sheeting, American society for testing and materials (2001).

Aulton, M., Mechanical properties of film coats. In *Pharmaceutical coating technology*, G. Cole, J. Hogan and M. Aulton; Taylor&Francis, London, (1995), 280-362.

Bai, J., Alleyne, V., Hagenmeier, R.D., Mattheis, J.P. and Baldwin, E.A., Formulation of zein coatings for apples (*Malus domestica* Borkh), *Postharvest Biol. Technol.* (2003) 28, 259-268.

Banker, G.S., Film coating theory and practice, *J Pharm Sci* (1966) 55 (1), 81-89.

Bartholomaeus, J.H. and Ziegler, I. Controlled release tramadol preparation with a storage-stable release profile and process for their production, US-patent no: 6451350. (2002).

Bauer, K.H., Lehmann, K., Osterwald, H.P. and Rothgang, G., Überzogene Arzneiformen, Stuttgart, Wissenschaftliche Verlagsgesellschaft mbH. (1988)

Bayraktar, O., Malay, O., Ozgarip, Y. and Batigun, A., Silk fibroin as a novel coating material for controlled release of theophylline, *Eur J Pharm Biopharm* (2005) 60 (3), 373-81.

Beatty, M.L. and Boettner, W.A. Long-acting matrix tablet formulations, European patent no: EP103387. (1984).

Beck, M.I., Tomka, I. and Waysek, E., Physico-chemical characterization of zein as a film coating polymer: A direct comparison with ethyl cellulose, *Int. J. Pharm.* (1996) 141 (1-2), 137-150.

Bodmeier, R. Production of redispersed aqueous polymer dispersion especially useful for coating solid pharmaceutical dosage forms, German patent no: DE19824650. (1999).

Bodmeier, R. and Chen, H., Evaluation of biodegradable poly(lactide) pellets prepared by direct compression, *Journal of Pharmaceutical Sciences* (1989) 78 (10), 819-822.

Bodmeier, R., Guo, X. and Paeratakul, O., Process and formulation factors affecting the drug release from pellets coated with the ethylcellulose-pseudolatex Aquacoat. In *Aqueous*

polymeric coatings for pharmaceutical dosage forms, 2nd Edition, J.W. McGinity; Marcel Dekker, New York, (1997), 55-80.

Bodmeier, R. and Paeratakul, O., Mechanical properties of dry and wet cellulosic and acrylic films prepared from aqueous colloidal polymer dispersions used in the coating of solid dosage forms, *Pharm Res* (1994) 11 (6), 882-888.

Bodmeier, R. and Paeratakul, O., Process and formulation variables affecting the drug release from chlorpheniramine maleate-loaded beads coated with commercial and self-prepared aqueous ethyl cellulose pseudolatexes, *Int. J. Pharm.* (1991) 70, 59-68.

Bodmeier, R. and Paeratakul, O., Theophylline tablets coated with aqueous latexes containing dispersed pore formers, *J. Pharm. Sci.* (1990) 79 (10), 925-8.

Brown, G.L., Formation of films from polymer dispersions, *J Polym Sci* (1956) 22, 423.

Buerki, R.A. and Higby, G.J., History of dosage forms and basic preparations. In *Encyclopedia of pharmaceutical technology*, J. Swarbrick and J.C. Boylan; Marcel Dekker, New York, (1993), 304-339.

CDER, Inactive ingredient search for approved drug products,
<http://www.accessdata.fda.gov/scripts/cder/iig/index.cfm> (1996).

CDER, Inactive ingredient search for approved drug products,
<http://www.accessdata.fda.gov/scripts/cder/iig/index.cfm> (2006).

Cerea, M., Zheng, W., Young, C. and McGinity, J.W., A novel powder coating process for attaining taste masking and moisture protective films applied to tablets, *Int J Pharm* (2004) 279, 127-139.

Chang, R.-K., Iturrioz, G. and Luo, C.-W., Preparation and evaluation of shellac pseudolatex as an aqueous enteric coating system for pellets, *Int J Pharm* (1990) 60, 171-173.

Chester, D.P., Goodhart, F.W., Township, M. and Liebermann, H.A. Sustained release dosage in the pellet form and process thereof, US-patent no: 3492397. (1970).

Cole, G., Automation and coating processes. In *Pharmaceutical coating technology*, G. Cole, J. Hogan and M. Aulton; Taylor&Francis, London, (1995a), 249-266.

Cole, G., Coating pans and coating columns. In *Pharmaceutical coating technology*, G. Cole, J. Hogan and M. Aulton; Taylor&Francis, London, (1995b), 205-239.

6. References

Cole, G., The coating process. In *Pharmaceutical coating technology*, G. Cole, J. Hogan and M. Aulton; Taylor&Francis, London, (1995c), 170-204.

Cole, G., Validation of tablet coating processes. In *Pharmaceutical coating technology*, G. Cole, J. Hogan and M. Aulton; Taylor&Francis, London, (1995d), 267-287.

Cole, G.C., Introduction and overview of pharmaceutical coating. In *Pharmaceutical coating technology*, G. Cole, J. Hogan and M. Aulton; Taylor&Francis Ltd., London, (1995e), 1-5.

Colorcon, Surelease - Product information Formula no: E-7-19010, (2001).

Cook, R.B., Mallee, F.M. and Shulman, M.L. Purification of zein from corn gluten meal, US-patent no: 5580959. (1996).

de Graaf, M.E., Madeka, H., Cocero, A.M. and Kokini, J.L., Determination of the effect of moisture on gliadin glass transition using mechanical spectrometry and differential scanning calorimetry, *Biotechnol. Prog.* (1993) 9, 210-213.

Dillon, R.E., Bradford, E.B. and Andrews, R.D., Plasticizing a synthetic latex, *Ind Eng Chem* (1953) 45 (4), 728-735.

Dillon, R.E., Matheson, L.A. and Bradford, E.B., Sintering of synthetic latex particles, *Journal of Colloid Science* (1951) 6 (2), 108-117.

Dobler, F., Pith, T., Lambla, M. and Holl, Y., Coalescence mechanism of polymer colloids: I. Coalescence under the influence of particle-water interfacial tension, *Journal of Colloid and Interference Science* (1992) 152 (1), 1-11.

DOW, Ethocel FP polymers: product specification sheet, Form no:198-02001 (1996a).

DOW, Ethocel Premium polymers for pharmaceutical applications, Form no:198-02002 (1998).

DOW, Ethylcellulose polymers: Technical handbook, Form no.192-00818 (2004).

DOW, Evaluation of fine particle size Ethocel: Polymer for use in controlled-release matrix drug delivery, Form no.198-02020 (1996b).

Durig, T., Hall, R.H. and Salzstein, R.A. Highly compressible ethylcellulose for tabletting, US-patent no: 6592901. (2003).

Eckersley, S.T. and Rudin, A., Mechanism of film formation from polymer latexes, *J Coat Technol* (1990) 62 (780), 89-100.

- Engelmann, S., Entwicklung eines lösungsmittelfreien Befilmungsverfahrens für feste Arzneiformen. PhD thesis. Freiburg, Albert-Ludwigs-Universität.(2004)
- Entwistle, C.A. and Rowe, R.C., Plasticization of cellulose ethers used in the film coating of tablets., J Pharm Pharmacol. (1979) 31(5), 269-72.
- Esen, A., Separation of alcohol-soluble proteins (zeins) from maize into tree fractions by differential solubility, Plant Physiol (1986) 80, 623-627.
- Evans, C.D. and Manley, R.H., Solvents for zein. Primary solvents., Journal of Industrial and Engineering Chemistry (Washington, D. C.) (1941) 33, 1416-17.
- FDA, GRAS-list, <http://vm.cfsan.fda.gov/%7Edms/eafus.html> (2004).
- FMC, Aquacoat ECD - Product information, (1996).
- Freeman Industries, L., Zein, regular grade F4000 for pharmaceutical, cosmetic and food use (specification sheet), <http://www.freemanllc.com/zeinf4000.htm> (2004).
- Freeman Industries LLC, Zein, regular grade F4000 for pharmaceutical, cosmetic and food use (specification sheet), <http://www.freemanllc.com/zeinf4000.htm> (2005a).
- Freeman Industries LLC, Zein-general information, <http://www.freemanllc.com/zein.htm> (2005b).
- Frenkel, J., Viscous flow of crystalline bodies under the action of surface tension, Journal of Physics (1945) 9 (5), 385-391.
- Fukui, E., Uemura, K. and Kobayashi, M., Studies on applicability of press-coated tablets using hydroxypropylcellulose (HPC) in the outer shell for timed-release preparations, Journal of Controlled Release (2000) 68, 215-223.
- Ghebre-Sellassie, I., Iyer, U., Kubert, D. and Fawzi, M.B., Characterization of a new water-based coating for modified-release preparations, Pharmaceutical Technology (1988) 12 (9), 96-106.
- Gordon, M. and Taylor, J.S., Ideal copolymers and the second order transitions of synthetic rubbers. I. non-crystalline copolymers., J. Appl. Chem. (1952) 2, 493-501.
- Grigsby, J.J., Blanca, H.W. and Prausnitz, J.M., Cloud-point temperatures for lysozyme in electrolyte solutions: effect of salt type, salt concentration and pH, Biophysical Chemistry (2001) 91, 231-243.

6. References

- Guo, J.H., Robertson, R.E. and Amidon, G.L., An investigation into the mechanical and transport properties of aqueous latex films: a new hypothesis for the film-forming mechanism of aqueous dispersion system, *Pharm Res* (1993) 10 (3), 405-10.
- Haralampu, S.G., Sands, S. and Gross, A. Protein-based edible coatings, International patent no: WO9106227. (1991).
- Hariharan, M. and Gupta, V.K., A novel concept for the production of compression coated tablets, *Pharmaceutical Technology Europe* (2002) 14 (4), 46-56.
- Harris, M.R. and Ghebre-Sellassie, I., Aqueous polymeric coating for modified release oral dosage forms. In *Aqueous polymeric coatings for pharmaceutical dosage forms*, 2nd Edition, J.W. McGinity; Marcel Dekker, Inc., Ney York, (1997), 82-100.
- Hofmeister, F., Zur Lehre von der Wirkung der Salze, *Arch. Exp. Pathol. Pharmakol.* (1888) 24, 247-260.
- Hogan, J.E., Film-coating materials and their properties. In *Pharmaceutical coating technology*, G. Cole, J. Hogan and M. Aulton; Taylor & Francis Ltd., London, (1995a), 6-52.
- Hogan, J.E., Modified release coatings. In *Pharmaceutical coating technology*, G. Cole, J. Hogan and M. Aulton; Taylor&Francis, London, (1995b), 409-438.
- Int Patents Dev Co. Produit de zéine résistant à l'eau, FR-patent no: 838346. (1939).
- James, A.L. and Tenafly, N.J. Production of zein coatings, US-patent no: 2364792. (1944).
- Jan, S., Cheng, X.X. and Chen, C.-M. Controlled release oral dosage forms of ketoprofen, US-patent no: 6238703. (2001).
- Johnston, G.W., Plains, M., Malani, R.I., Orange, E. and Scott, M.W. Process for stabilizing shellac coating, US-patent no: 3,274,061. (1966).
- Kablitz, C.D., Harder, K. and Urbanetz, N.A., Dry coating in a rotary fluid bed, European Journal of Pharmaceutical Sciences (2006) 27, 212-219.
- Katayama, H. and Kanke, M., Drug release from directly compressed tablets containing zein, *Drug Dev. Ind. Pharm.* (1992) 18 (20), 2173-2184.
- Keddie, J.L., Meredith, P., Jones, R.A.L. and Donald, A.M., Kinetics of film formation in acrylic latices studied with multiple-angle-of-incidence ellipsometry and environmental SEM, *Macromolecules* (1995) 28, 2673-2682.

Kretschmer, C.B., Infrared spectroscopy and optical rotary dispersion of zein, wheat gluten and gliadin, *J. Phys. Chem.* (1957) 61, 1627-1631.

Lafferty, S.V., Newton, J.M. and Podczeck, F., Dynamic mechanical thermal analysis studies of polymer films prepared from aqueous dispersions, *Int J Pharm* (2002) 235, 107-111.

Lai, H.-M. and Padua, G.W., Properties and microstructure of plasticized zein films., *Cereal Chem.* (1997) 74 (6), 771-775.

Lai, H.-M. and Padua, G.W., Water vapor barrier properties of zein films plasticized with oleic acid., *Cereal Chem.* (1998) 75 (2), 194-199.

Lai, H.-M., Padua, G.W. and Wei, L.S., Properties and microstructure of zein sheets plasticized with palmitic and stearic acids., *Cereal Chem.* (1997) 74 (1), 83-90.

Lecomte, F., Siepmann, J., Walther, M., MacRae, R.J. and Bodmeier, R., Blends of enteric and GIT-insoluble polymers used for film coating: physicochemical characterization and drug release patterns, *Journal of Controlled Release* (2003) 89, 457–471.

Lecomte, F., Siepmann, J., Walther, M., MacRae, R.J. and Bodmeier, R., pH-Sensitive polymer blends used as coating materials to control drug release from spherical beads: elucidation of the underlying mass transport mechanisms, *Pharm Res* (2005) 22 (7), 1129-1141.

Lecomte, F., Siepmann, J., Walther, M., MacRae, R.J. and Bodmeier, R., Polymer Blends Used for the Coating of Multiparticulates: Comparison of Aqueous and Organic Coating Techniques, *Pharm Res* (2004) 21 (5), 882-890.

Lehmann, K., Chemistry and application properties of polymethacrylate coating systems. In *Aqueous polymeric coatings for pharmaceutical dosage forms*, 2nd Edition, J.W. McGinity; Marcel Dekker, New York, (1997), 101-176.

Lehmann, K., Coating of multiparticulates using polymeric solutions: formulation and process considerations. In *Multiparticulate oral drug delivery*, 1st Edition, I. Ghebre-Sellassie; Marcel Dekker, Inc., New York, (1994), 51-78.

Lehmann, K., Herstellung und Verwendung von Latices aus redispersierbaren Pulvern anionischer Acrylharze, *Acta Pharmaceutica Technologica* (1985) 31 (2), 96-106.

Lehmann, K., Polymers for coating pharmaceutical preparations. In *Practical course in lacquer coating*, K. Lehmann; Röhm GmbH, Darmstadt, (1989), 2-4.

6. References

- Li, L.C. and Li, J.H., Sintering in pharmaceutics. In *Encyclopedia of pharmaceutical technology*, J. Swarbrick and J.C. Boylan; Marcel Dekker, New York, (1996) 14, 98-99.
- Lin, F. and Meier, D.J., Latex film formation: atomic force microscopy and theoretical results, Progress in Organic Coatings (1996) 29, 139-146.
- Lin, S.-Y., Lin, K.-H. and Li, M.-J., Micronized ethylcellulose used for designing a directly compressed time-controlled disintegration tablet, J Control Release (2001) 71, 321-328.
- Lindstedt, B., Ragnarsson, G. and Hjartstam, J., Osmotic pumping as a release mechanism for membrane-coated drug formulations, International Journal of Pharmaceutics (1989) 56 (3), 261-268.
- Lindstedt, B., Sjoberg, M. and Hjartstam, J., Osmotic pumping release from KCl tablets coated with porous and non-porous ethylcellulose, International Journal of Pharmaceutics (1991) 67 (1), 21-27.
- Lippold, B.C. and Monells Pages, R., Film formation, reproducibility of production and curing with respect to release stability of functional coatings from aqueous polymer dispersions, Pharmazie (2001) 56, 5-17.
- Majid Khan, G. and Bi Zhu, J., Ibuprofen release kinetics from controlled-release tablets granulated with aqueous polymeric dispersion of ethylcellulose II: Influence of several parameters and coexcipients, Journal of Controlled Release (1998) 56 (1-3), 127-134.
- Malm, C.J. and Waring, C.E. Cellulose esters containing dicarboxylic acid groups and process of making the same, US-patent no: 2093462. (1937).
- Manley, R.H. and Evans, C.D., Binary solvents for zein., Ind. Eng. Chem. (1943) 35, 661-5.
- Maruyama, N., Nishiyama, Y. and Kokubo, H. Method of manufacturing a solid preparation coated with non-solvent coating, US-patent no: 5789014. (1998).
- Mason, I.D. and Palmer, L.S., preparation of white zein from yellow corn, J. Biol. Chem. (1934) 107, 131-132.
- Matsushima, N., Danno, G.-i., Takezawa, H. and Izumi, Y., Three-dimensional structure of maize alpha-zein proteins studied by small-angle X-ray scattering, Biochimica et Biophysica Acta (BBA) - Protein Structure and Molecular Enzymology (1997) 1339 (1), 14-22.
- Mazer, T.B., Meyer, G.A., Hwang, S.-M., Candler, E.L., Drayer, L.R. and Daab-Krzykowski, A. System for delivering an active substance for sustained release, US-patent no: 5160742. (1992).

- McDowell, C.J. Zein water emulsion, US-patent no: 2810656. (1957).
- Mehta, A.M., Processing and equipment considerations for aqueous coatings. In *Aqueous polymeric coatings for pharmaceutical dosage forms*, 2nd Edition, J.W. McGinity; Marcel Dekker, New York, (1997), 287-326.
- Menard, K.P., Dynamic mechanical analysis: a practical introduction, Boca Raton, CRC Press. (1999)
- Meyer, G.A. and Mazer, T.B. Prolamine coatings for taste masking, US-patent no: 5609909. (1997).
- Morflex Inc., Pharmaceutical coatings bulletin 102-1, (1993).
- Morflex Inc., Pharmaceutical coatings bulletin 102-5, Greensboro, N.C. (1997).
- Morris, L., Unger, L.G. and Wilson, A.L. Purification and recovery of zein, US-patent no: 2733234. (1956).
- Nagai, T., Obara, S., Kokubo, H. and Hoshi, N., Application of HPMC and HPMCAS to aqueous film coating of pharmaceutical dosage forms. In *Aqueous Polymeric Coatings for Pharmaceutical Dosage Forms*, J.W. McGinity; Marcel Dekker, New York, (1997), 177-226.
- O'Donnell, P.B. and McGinity, J.W., Mechanical properties of polymeric films prepared from aqueous polymeric dispersions. In *Aqueous polymeric coating for pharmaceutical dosage forms*, 2nd Edition, J.W. McGinity; Marcel Dekker, Inc., New York, (1997), 517-548.
- O'Donnell, P.B., Wu, C., Wang, J., Wang, L., Oshlack, B., Chasin, M., Bodmeier, R. and McGinity, J.W., Aqueous pseudolatex of zein for film coating of solid dosage forms, Eur. J. Pharm. Biopharm. (1997) 43, 83-89.
- Obara, S., Maruyama, N., Nishiyama, Y. and Kokubo, H., Dry coating: an innovative enteric coating method using a cellulose derivative, Eur J Pharm Biopharm (1999) 47, 51-59.
- Oh, Y.K. and Flanagan, D.R., Swelling and permeability characteristics of zein membranes, PDA Journal of Pharmaceutical Science and Technology (2003) 57 (3), 208-217.
- Okhamafe, A.O. and York, P., Studies of interaction phenomena in aqueous-based film coatings containing soluble additives using thermal analysis techniques, Journal of Pharmaceutical Sciences (1988) 77 (5), 438-443.

6. References

- Osborne, T.B., The amount and properties of the proteids of the maize kernel, J. Am. Chem. Soc. (1897) 19, 525-532.
- Oshlack, B., Chasin, M., McGinity, J. and Bodmeier, R. Aqueous dispersions of zein and preparations thereof, US-patent no: 5324351. (1994).
- Osterwald, H., Eisenbach, C.D. and Bauer, K.H., Wirkungsweise und Optimierungsmöglichkeiten der Anwendung von Weichmachern in Filmüberzügen, Acta Pharmaceutica Technologica (1982) 28 (1), 34-43.
- Ozturk, A.G., Ozturk, S.S., Palsson, B.O., Wheatley, T.A. and Dressman, J.B., Mechanism of release from pellets coated with an ethylcellulose-based film, Journal of Controlled Release (1990) 14 (3), 203-213.
- Paeratakul, O., Pharmaceutical application of aqueous colloidal polymer dispersions. PhD thesis. University of Texas at Austin.(1993)
- Pearnchob, N., Evaluation of new film coating processes and materials. PhD thesis. Berlin, Freie Universität Berlin.(2003)
- Pearnchob, N. and Bodmeier, R., Coating of pellets with micronized ethylcellulose particles by a dry powder coating technique, International Journal of Pharmaceutics (2003a) 268 (1-2), 1-11.
- Pearnchob, N. and Bodmeier, R., Dry polymer powder coating and comparison with conventional liquid-based coatings for Eudragit(R) RS, ethylcellulose and shellac, Eur J Pharm Biopharm (2003b) 56 (3), 363-369.
- Pearnchob, N. and Bodmeier, R., Dry powder coating of pellets with micronized Eudragit RS for extended drug release, Pharm Res (2003c) 20 (12), 1970-1976.
- Pearnchob, N., Dashevsky, A. and Bodmeier, R., Coating with extended release polymers, EXACT-Excipients and Actives for Pharma (BASF) (2004a) 12, 2-5.
- Pearnchob, N., Dashevsky, A. and Bodmeier, R., Improvement in the disintegration of shellac-coated soft gelatin capsules in simulated intestinal fluid, J. Control. Rel. (2004b) 94 (2-3), 313-321.
- Pearnchob, N., Dashevsky, A., Siepmann, J. and Bodmeier, R., Shellac used as coating material for solid pharmaceutical dosage forms: understanding the effects of formulation and processing variables, S.T.P. Pharma Sciences (2003a) 13 (6), 387-396.

Pearnchob, N., Siepmann, J. and Bodmeier, R., Pharmaceutical application of shellac: moisture protective and taste-masking coatings and extended-release matrix tablets, *Drug Dev. Ind. Pharm.* (2003b) 29 (8), 925-938.

Penning, M., Schellack-ein "nachwachsener" Rohstoff mit interessanten Eigenschaften und Anwendungen, *Seifen-Öle-Fette-Wachse* (1990) 6, 221-224.

Porter, S.C., Coating of pharmaceutical dosage forms. In *Remington's Pharmaceutical Sciences*, 18th Edition, A.R. Gennaro; Mack Publishing Company, Easton, Pennsylvania, (1990), 1667-1675.

Porter, S.C., Controlled-release film coatings based on ethyl cellulose, *Drug. Dev. Ind. Pharm.* (1989) 15 (10), 1495-1521.

Porter, S.C. and Bruno, C.H., Coating of solid-dosage forms. In *Pharmaceutical dosage forms: Tablets*, 2nd Edition, H.A. Liebermann, L. Lachmann and J.B. Schwartz; Marcel Dekker, New York, (1990) 3, 77-160.

Porter, S.C. and Ghebre-Sellassie, I., Key factors in the development of modified-release pellets. In *Multiparticulate oral drug delivery*, I. Ghebre-Sellassie; Marcel Dekker, New York, (1994), 217-284.

Radebaugh, G.W., Murtha, J.L., Julian, T.N. and Bondi, J.N., Methods for evaluating the puncture and shear properties of pharmaceutical polymeric films, *International Journal of Pharmaceutics* (1988), 39-46.

Reiners, R.A., Corn proteins: Potential for their industrial use. In *Industrial uses of cereals*, Y. Pomeranz; American Association of Cereal Chemists, St.Paul, Minn., (1973), 285-302.

Rekhi, G.S. and Jambhekar, S.S., Ethylcellulose - A Polymer Review, *Drug Development and Industrial Pharmacy* (1995) 21 (1), 61-77.

Rekhi, G.S., Porter, S.C. and Jambhekar, S.S., Factors affecting the release of propranolol hydrochloride from beads coated with aqueous polymeric dispersions, *Drug Dev. Ind. Pharm.* (1995) 21 (6), 709-729.

Rosenthal, F. Sustained release pharmaceutical product, US-patent no: 2895880. (1959).

Rowe, R.C. and Forse, S.F., The effect of plasticizer type and concentration on the incidence of bridging of intagliations on film-coated tablets, *J. Pharm. Pharmacol.* (1981) 33, 174-175.

6. References

- Rowe, R.C., Kotaras, A.D. and White, E.F.T., An evaluation of the plasticizing efficiency of the dialkylphthalates in ethylcellulose films using the torsional braid pendulum, *Int. J. Pharm.* (1984) 22, 57-62.
- Sakellariou, P. and Rowe, R.C., Interactions in cellulose derivative films for oral drug delivery, *Progress in polymer science* (1995) 20 (5), 889-942.
- Sakellariou, P., Rowe, R.C. and White, E.F.T., An evaluation of the interaction and plasticizing efficiency of the polyethylene glycols in ethylcellulose and hydroxypropyl methylcellulose films using the torsional braid pendulum, *Int J Pharm* (1986) 31, 55-64.
- Sathayé, B.V., Qualifizierung einer Hochleistungs-Blisterverpackungslinie. In *GMP-/FDA-gerechte Validierung*, Concept Heidelberg; Editio Cantor Verlag, (2002).
- Savage, G.v. and Rhodes, C.T., The sustained release coating of solid dosage forms: a historical review, *Drug Development and Industrial Pharmacy* (1995) 21 (1), 93-118.
- Schmidt, P.C., Secondary electron microscopy in the pharmaceutical technology. In *Encyclopedia of pharmaceutical technology*, J. Swarbrick and J.C. Boylan; Marcel Dekker, New York, (2000) 19, 311-356.
- Seitz, J.A., Aqueous film coating. In *Encyclopedia of pharmaceutical technology*, J. Swarbrick and J.C. Boylan; Marcel Dekker, New York, (1988) 1, 337-349.
- Sessa, D.J., Eller, F.J., Palmquist, D.E. and Lawton, J.W., Improved methods for decolorizing corn zein, *Industrial Crops and Products* (2003) 18 (1), 55-65.
- Shah, N.H., Zhang, L., Railkar, A., Trivedi, I., Patel, C.I., Infeld, M.H., Malick, A.W. and Wong, L.K., Factors affecting the kinetics and mechanism of release of cilazapril from beadlets coated with aqueous and nonaqueous ethyl cellulose-based coatings, *Pharmaceutical Technology* (1994) 18 (10), 140-149.
- Sheetz, D.P., Formation of films by drying of latex, *Journal of Applied Polymer Science* (1965) 9 (11), 3759-3773.
- Sheth, P. and Leeson, L.J. Sustained action dosage forms, US patent no. 4,137,300. (1979).
- Shukla, R. and Cheryan, M., Zein: the industrial protein from corn, *Industrial Crops and Products* (2001) 13 (3), 171-192.
- Signorino, C.A. Shellac film coatings providing release at selected pH and method, US-patent no. 6,620,431. (2003).

Signorino, C.A. Stabilized shellac sealing coating for tablets, US-patent no. 3,738,952. (1973).

Sinko, C.M. and Amidon, G.L., Plasticizer-induced changes in the mechanical rate of response of film coatings: an approach to quantitating plasticizer effectiveness, *Int J Pharm* (1989) 55, 247-256.

Specht, F., Saugestad, M., Waaler, T. and Müller, B.W., The application of shellac as an acidic polymer for enteric coating, *Pharm. Technol. Europe* (1998) 10, 20-28.

Streubel, A., Siepmann, J., Dashevsky, A. and Bodmeier, R., pH-independent release of a weakly basic drug from water-insoluble and -soluble matrix tablets, *Journal of Controlled Release* (2000) 67, 101-110.

Stroever Schellack Bremen, Product information.

Sturm, M. Shellac- tradition meets innovation, 6th Syntapharm Seminar. Berlin. (2005).

Swallen, L.C. Process for the production of zein, US-patent no: 2287649. (1942).

Swallen, L.C., Zein-a new industrial protein., *Ind. Eng. Chem.* (1941) 33, 394-8.

Tatham, A.S., Field, J.M., Morris, V.J., I'Anson, K.J., Cardle, L., Dufton, M.J. and Shewry, P.R., Solution conformational analysis of the alpha-zein proteins of maize., *J. Biol. Chem.* (1993) 268 (35), 26253-9.

Terebesi, I. and Bodmeier, R., Extended release coatings with natural polymers: zein-shellac mixed coatings, in preparation (2006a).

Terebesi, I. and Bodmeier, R., The key role of plasticiser for dry powder coating, in preparation (2006b).

The Merck Index, New Jersey, Merck & Co. Inc. (1989)

Vasavada, R.C., Shellac. In *Handbook of pharmaceutical ingredients*, A. Wade and P.J. Weller; American Pharmaceutical Association, Washington, (1994), 422-423.

Voyutskii, S.S., Amendment to the papers by Bradford, Brown and co-workers: "Concerning mechanisms of film formation from high polymer dispersions", *Journal of Polymer Science* (1958) 32 (125), 528-530.

6. References

- Washabaugh, M.W. and Collins, K.D., The systematic characterization by aqueous column chromatography of solutes which affect protein stability., *J Biol Chem* (1986) 261 (27), 12477-85.
- Waterman, K.C. and Fergione, M.B., Press-coating of immediate release powders onto coated controlled release tablets with adhesives, *Journal of Controlled Release* (2003) 89, 387-395.
- Wheatley, T.A. and Steuernagel, C.R., Latex Emulsions for Controlled Drug Delivery. In *Aqueous Polymeric Coatings for Pharmaceutical Dosage Forms*, 2nd Edition, J.W. McGinity; Marcel Dekker, Inc., New York, (1997), 1-54.
- Williams, R.O. and Liu, J., Influence of processing and curing conditions on beads coated with an aqueous dispersion of cellulose acetate phthalate, *European Journal of Pharmaceutics and Biopharmaceutics* (2000) 49, 243-252.
- Winters, E.P. and Deardorff, D.L., Zein as a Film-Type Coating for Medicinal Tablets, *J. Am. Pharm. Assoc.* (1958) 47 (8), 608-612.
- Wong, D. and Bodmeier, R., Flocculation of an aqueous colloidal ethyl cellulose dispersion (Aquacoat) with a water-soluble polymer, hydroxypropyl methyl cellulose, *Eur. J. Pharm. Biopharm.* (1996) 42 (1), 12-15.
- Wu, C. and McGinity, J.W., Influence of Ibuprofen as a solid-state plasticizer in Eudragit RS 30D on the physicochemical properties of coated beads, *AAPS PharmSciTech* (2001) 2 (4), 1-9.
- Zosel, A., Mechanisches Verhalten und Filmstruktur. In *Lack- und Polymerfilme: Viskoelastische Qualitätsmerkmale*, U. Zorll; Vincentz Verlag, Hannover, (1996), 60-105.

7. PUBLICATIONS

Poster presentations

1. **Terebesi I.**, Bodmeier R., Controlled Drug Release from Zein Coated Pellets: Effect of an Overcoat on Drug Release and Enzyme Degradation. *2003 AAPS Annual Meeting and Exposition, American Association of Pharmaceutical Scientists*, Salt Lake City, USA (2003)
2. **Terebesi I.**, Bodmeier R., Zein Aqueous Dispersions: Methods of Preparation and Investigation of Parameters Affecting the Particle Size. *International Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology APV*, Nürnberg, Germany (2004)
3. Stark W., Kelm J., **Terebesi I.**, Bodmeier R., Einsatz der Dynamisch Mechanischen Analyse (DMA) zur Untersuchung von Polymerüberzügen für Feste Arzneiformen mit Kontrollierter Wirkstofffreisetzung. *Polydays- The bi-annual International Meeting on Polymers 2004*, Potsdam, Germany (2004)
4. **Terebesi I.**, Bodmeier R., Extended Drug Release of a Freely Soluble Drug from Dry Powder Coated Pellets. *2004 AAPS Annual Meeting and Exposition, American Association of Pharmaceutical Scientists*, Baltimore, USA (2004)
5. **Terebesi I.**, Stark W., Bodmeier R., Extended Release Pellets Prepared by Dry Polymer Powder Coating. *1st PharmSciFair- Pharmaceutical Sciences Fair & Exhibition*, Nice, France (2005)
6. **Terebesi I.**, Bodmeier R., Pre-plasticized vs. Simultaneously Plasticized Ethylcellulose for Dry Polymer Powder Coating. *2005 AAPS Annual Meeting and Exposition, American Association of Pharmaceutical Scientists*, Nashville, USA (2005)

Oral presentations

Terebesi I., Bodmeier R., Zein-Shellac based Coatings for Extended Drug Release.

European Conference on Drug Delivery and Pharmaceutical Technology APGI, Sevilla,
Spain (2004)

Original Research Articles

1. **Terebesi I.**, Bodmeier R., Extended Release Coatings with Natural Polymers: Zein-Shellac Mixed Coatings (in preparation)
2. **Terebesi I.**, Bodmeier R., Extended Drug Release by Natural Polymer Coatings: Shellac Topcoats on Zein Basic Coatings (in preparation)
3. **Terebesi I.**, Bodmeier R., Dry Polymer Powder Coating: The Key Role of Plasticisers (in preparation)
4. **Terebesi I.**, Bodmeier R., Optimised Process Conditions and Formulations for Extended Release Dry Powder Coated Pellets (in preparation)
5. **Terebesi I.**, Bodmeier R., Aqueous Zein Dispersions: Preparation Parameters Affecting the Dispersion Properties (in preparation)

8. CURRICULUM VITAE

Terebesi Ildikó

Date / place of birth: 4th of August 1976
 in Kronstadt (Romania)

Education

- 6 / 1995: General university entrance qualification (Abitur)
- 9 / 1995 – 12 / 2000: Study of pharmacy at Ruprecht- Karls- University, Heidelberg
- since 2 / 2002: Ph.D. thesis, College of Pharmacy, Freie Universität Berlin
 Supervisor: Prof. Dr. R. Bodmeier
- since 4 / 2004: Teaching assistance in the students' practical courses *Sterile dosage forms* (7th semester) and *Galenics* (3rd semester)
- 10 – 11 / 2004: Research internship at Universidad National de Rosario, Argentina
 Topic: *Preparation and characterisation of solid dispersions for poorly soluble drugs*

Professional experiences

- 8 – 9 / 1996: Boehringer Mannheim, Mannheim, Department for Galenic Development and Analytics
- 11 / 1999 – 4 / 2000: Neue Apotheke, Berlin; pre-registration training (retail pharmacy)
- 5 – 12 / 2000: Hoffmann-La Roche, Grenzach-Wyhlen; pre-registration training
- 1 – 6 / 2001: Hoffmann-La Roche, Grenzach-Wyhlen; Pharma Manufacturing
- 8 / 2001 – 1 / 2002: University of the Saarland, Saarbrücken; scientific co-worker
- 6 / 2002 – 2 / 2006: Charlotten-Apotheke in Spandau, Berlin, deputy supervisor pharmacist