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Modification of Water-soluble Polymers by Potentially Waste By-products from Dairy Industry

V. Sedlarik (a), N. Saha (a), M. Julinova (b), A. Kalendova (c), P. Saha (a)

*(a) Polymer Centre, Faculty of Technology, Tomas Bata University in Zlin, TGM-275,
CZ – 76272, Zlin, Czech Republic*

*(b) Department of Environmental Technology, Tomas Bata University in Zlin, TGM-275,
CZ – 76272, Zlin, Czech Republic*

*(c) Department of Polymer Engineering, Tomas Bata University in Zlin, TGM-275,
CZ – 76272, Zlin, Czech Republic*

The water-soluble polymers blend of poly (vinyl alcohol) (PVA) and poly (vinylpyrrolidone) (PVP) were modified with either lactose (L) or calcium lactate (CL). Thermal, mechanical properties and biodegradability of PVA/PVP, PVA/PVP-L and PVA/PVP-CL were studied. Biodegradability of polymer samples were investigated in presence of activated sludge from municipal waste-water treatment plant. The increasing of glass transition temperature of PVA/PVP-CL, as well as increasing of mechanical properties of PVA/PVP-L were observed with increase of filler content up to 25 wt.%. The modified water-soluble polymer samples with either L or CL showed about 40% biodegradability within 200 hours.