

Rheologic and shape memory properties of natural biopolymers

Muhammad Nor Arifin Yaakob^{1,2}, Rasidi Roslan^{1,2} and Mohd Hasbi Ab. Rahim^{1,2}

¹Faculty of Industrial Sciences and Technology, Universiti Malaysia Pahang Al-Sultan Abdullah, Lebuhr Persiaran Tun Khalil Yaakob, Gambang Kuantan, Pahang, Malaysia; ²Centre for Advanced Intelligent Materials, Universiti Malaysia Pahang Al-Sultan Abdullah, Lebuhr Persiaran Tun Khalil Yaakob, Gambang Kuantan, Pahang, Malaysia

Abbreviations

DIPA	Diisopropanolamine
ESO	Epoxidized soybean oil
Eu-EP	Eugenol-derived biobased epoxy
G-dea	1,10-Bis(8-methoxy-2H-benzo[E][1,3]oxazin-3[4H]-yl)decane
HUBs	Hindered urea bonds
HyBP	Hyperbranched prepolymers
IE-dea	1,10-Bis(8-bethoxy-6-[prop-1-en-1-yl]-2Hbenzo[e] [1,3]oxazin-3[4H]yl)decane
IPDI	Isophorone diisocyanate
ISB	Isosorbide
NBSMPS	Natural biopolymer shape memory polymers
NIPU	Nonisocyanate polyurethane
NR	Natural rubber
PBDPS	Poly(4,4'-bis[6-hydroxyhexyloxy]biphenylphenylsuccinate)
PBISI	Poly(butanediol/isosorbide/sebacate/itaconate)
PCL-diol	Polycaprolactone diol
PLA	Poly(lactic acid)
PLBSI	Poly(butanediol/lactate/sebacate/itaconate)
PLLA	Poly(L-lactic acid)
PU	Polyurethane
SMPC	Shape memory polymer composite
SMP	Shape memory polymer
SMPU	Shape memory polyurethane
T_{cl}	Liquid crystalline clearing transition
T_d	Deformation temperature
T_g	Glass transition temperature
THAM	Tris(hydroxymethyl)aminomethane
T_m	Melting temperature
TPU	Thermoplastic polyurethane
TPVs	Thermoplastic vulcanizates