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PVC Stabilisation

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ANSWER 1
AN 163:386709
TI The effect of stabilizers on the foaming of hard polyvinyl chloride compositions with azodicarbonamide
AU Saki, Tahsin A.; Markov, A. V.
CS MITKhT im. M. V. Lomonosova, Mosocow, Russia
SO Plasticheskie Massy (2015), (1-2), 47-50
CODEN: PLMSAI; ISSN: 0554-2901
PB ZAO NP "Plasticheskie Massy"
DT Journal
LA Russian
AB Foaming of rigid PVC containing azodicarbonamide foaming gent and thermal stabilizers (lead sulfate) and phenolic antioxidants was studied. Antioxidants improving and hindering foaming of PVC were identified.

ANSWER 2
AN 163:351473
TI Study on optimum synthesis process of lanthanum cyanurate and its plastication on PVC
AU Li, Mei; Jiang, Zai-yong; Liu, Zhao-gang; Hu, Yan-hong; Wang, Mi-tang; Wang, Hai-ou
CS Key Laboratory of New Technologies of Modern Metallurgy and Application of Rare Earth Materials, School of Material and Metallurgy, Inner Mongolia University of Science and Technology, Baotou, 014010, Peop. Rep. China
SO Youse Jinshu, Yelian Bufen (2013), (12), 48-51
CODEN: YJYBFF; ISSN: 1007-7545
DOI 10.3969/j.issn.1007-7545.2013.12.014
PB Youse Jinshu Bianjibu
DT Journal
LA Chinese
AB Lanthanum cyanurate was synthesized from cyanuric acid, lanthanum nitrate and sodium hydroxide. The optimum synthesis conditions of lanthanum cyanurate were determined by orthogonal test. The plastication of lanthanum cyanurate, lanthanum stearate, calcium stearate and zinc stearate on PVC were investigated and compared by using torque rheometer. The results showed that the optimum synthesis conditions included: temperature 70□C, NaOH concentration 1.2mol/L, reaction time 60min, and pH 7. The combination of rare earth cyanurate stabilizer and rare earth stearate stabilizer had the optimum plastication results.

ANSWER 3
AN 163:331886
TI Study on the synthesis of 2-hydroxycinnamic acid-lanthanum and the thermal stabilizing effect of PVC
AU Duan, Cheng; Li, Mei; Wang, Hai-ou; Liu, Zhao-gang; Hu, Yan-hong; Wang, Mi-tang
CS Key Laboratory of New Technologies of Modern Metallurgy and Application of Rare Earth Materials, School of Material and Metallurgy, Inner Mongolia University of Science and Technology, Baotou, 014010, Peop. Rep. China
SO Suliao Gongye (2013), 41(10), 98-101
CODEN: SUGOF9; ISSN: 1005-5770
DOI 10.3969/j.issn.1005-5770.2013.10.025
PB Suliao Gongye Bianjibu
DT Journal
LA Chinese
AB The 2-hydroxycinnamic acid-lanthanum was prepared by coumarin and lanthanum nitrate, and it was analyzed by FTIR. The thermal stability of poly(vinyl chloride) with 2-hydroxycinnamic acid-lanthanum as a thermal stabilizer was

investigated by a Congo Red test and oven aging test. The tests showed that the 2-hydroxycinnamic acid-lanthanum had longer induction period values(tss) compared with some of the common stabilizers used industrially, such as lead stearate, Ca-Zn stearate and cerium stearate. Blending 2-hydroxycinnamic acid-lanthanum with ZnSt2 and pentaerythritol had synergistic effect on both the induction period and the discoloration. Torque rhemoter test showed plasticization of PVC could be promoted by 2-hydroxycinnamic acid-lanthanum which was decreased to 36 s.

ANSWER 4
AN 163:331774
TI Antioxidative efficiency terpenphenol at thermo-oxidative degradation polyvinyl chloride
AU Akhmetkhanov, R. M.; Kolesov, S. V.; Gabitov, I. T.; Hukicheva, I. Yu.; Kuchin, A. V.; Zaikov, G. E.
CS The Bashkir State University, Ufa, Russia
SO Analytical Tools and Industrial Applications for Chemical Processes and Polymeric Materials (2014), 73-89. Editor(s): Rakovsky, Slavcho Kirillov; Kozlowski, Ryszard; Guarrotxena, Nekane. Publisher: Apple Academic Press Inc., Oakville, Ont.
CODEN: 69SFSO; ISBN: 978-1-926895-66-6
DOI 10.1201/b16135-5
DT Conference
LA English
AB The effects of certain terpenphenols on the process thermooxidative dehydrochlorination on hard and plasticized PVC is studied. The study of antioxidant activity the terpenphenols in autocatalytic oxidation of the plasticizers is made. Degradation at temps. above 150□ terpenphenols data on efficiency the stabilizing exceed ionol and almost as good as the efficiency of industrial antioxidant difenilolpropan. The studied terpenphenols are of great interest for practical use in the production of polymeric materials based on PVC.
RE CITED REFERENCES
(1) Chukicheva, I; Russian Chem Well 2004, V48(3), P2
(2) Kulish, E; Polymer Science 2000, V42(5), P868
(3) Mikhailov, N; No publication given 1962, V22(151), P769
(4) Minsker, K; Chem 1979, P272
(5) Minsker, K; Reports of the Academy of Sciences of the USSR 1982, V263(1), P140
(6) Shlyapnikov, Y; Chem 1986, P256

ANSWER 5
AN 163:331693
TI Effects of chitosan as biopolymer coupling agent on the thermal and rheological properties of polyvinyl chloride/wood flour composites
AU Xu, Kaimeng; Li, Kaifu; Zhong, Tuhua; Guan, Litao; Xie, Chengping; Li, Shan
CS Department of Forestry, South China Agricultural University, Guangzhou, 510642, Peop. Rep. China
SO Composites, Part B: Engineering (2014), 58, 392-399
CODEN: CPBEFF; ISSN: 1359-8368
DOI 10.1016/j.compositesb.2013.10.056
PB Elsevier Ltd.
DT Journal; (online computer file)
LA English
AB Chitosan (CS) was opted as a novel biopolymer coupling agent for wood flour polyvinyl chloride composites (WF/PVC) to improve interfacial adhesion. This study mainly aimed at investigating the effects after adding CS of different addition amts. and particle sizes on the thermal and rheol. properties of

WF/PVC composites by the analyses of vicat softening temperature test (VST), differential scanning calorimetry (DSC), thermogravimetry (TGA) and torque rheometry. The results indicated that an optimum addition amount (30 phr) with the particle size (180-220 mesh) could elevate heat resistance capacity, glass transition temperature of composites as well as thermal stability at the early stage of degradation more effectively. In the aspect of rheol. characteristics, longer fusion time, lower fusion torque and higher fusion temperature were showed as the CS addition amount increased and the particle size declined. In order to obtain sufficient compaction and ensure proper blending to compds. during extrusion, the higher pressure needed to be supplied when the addition amount of CS exceeded 20 phr.

RE CITED REFERENCES

(1) Adhikary, K; J Thermoplast Compos 2011, V24(2), P155 HCA
(2) Amri, F; Composites Part A 2013, V46, P89 HCA
(3) Anon; Shah B. Continuous microcellular foaming of polyvinyl chloride and compatibilization of polyvinyl chloride and polylactide composites. Ph.D. dissertation. America: Michigan State University; 2007.
(4) Anon; Xu KM, Li KF, Zhong TH, Xie CP. Interface self-reinforcing ability and antibacterial effect of natural chitosan modified polyvinyl chloride based wood flour composites. J Appl Polym Sci 2013 [in press], DOI: 10.1002/app.39854.
(5) Aouachria, K; Polym Test 2006, V25(8), P1101 HCA
(6) Ari, G; J Vinyl Addit Technol 2010, V16(4), P223 HCA
(7) Ashori, A; Composites Part B 2013, V47, P308 HCA
(8) Ayrilmis, N; Composites Part B 2013, V44(1), P745 HCA
(9) Cardenas, G; J Chil Chem Soc 2004, V49(4), P291 HCA
(10) Cheung, H; Composites Part B 2007, V38(3), P291
(11) Clemons, C; Forest Prod J 2002, V52(6), P10
(12) Diab, M; Spectrochim Acta A 2011, V79(5), P1057 HCA
(13) Fang, Y; J Therm Anal Calorim 2012, V109(3), P1577 HCA
(14) Farak, O; J Vinyl Addit Technol 2008, V14(2), P60
(15) Jeamtrakull, S; Composites Part B 2012, V43(7), P2721 HCA
(16) Jiang, H; Appl Surf Sci 2010, V256(14), P4559 HCA
(17) Jiang, H; J Vinyl Addit Technol 2003, V9(3), P138 HCA
(18) Jiang, H; J Vinyl Addit Technol 2004, V10(2), P59 HCA
(19) Kamdem, D; Composites Part A 2004, V35(3), P347
(20) Karayildirim, T; J Anal Appl Pyrol 2006, V75(2), P112 HCA
(21) Kokta, B; J Vinyl Technol 1990, V12(3), P146 HCA
(22) Kokta, B; Polym-Plast Technol 1990, V29(1-2), P87 HCA
(23) Kositchaiyong, A; Composites Part B 2013, V53, P25 HCA
(24) Lu, J; Wood Fiber Sci 2002, V34(3), P434 HCA
(25) Lu, X; Composites Part A 2010, V41(10), P1516
(26) Maldas, D; J Adhes Sci Technol 1989, V3(1), P529
(27) Maldas, D; J Vinyl Technol 1989, V11(2), P90 HCA
(28) Martinez-Camacho, A; Carbohydr Polym 2010, V82(2), P305 HCA
(29) Matuana, L; J Vinyl Addit Technol 1997, V3(4), P265 HCA
(30) Matuana, L; J Vinyl Addit Technol 2007, V13(1), P7 HCA
(31) Matuana, L; Polym Compos 1998, V19(4), P446 HCA
(32) Matuana, L; Polym Eng Sci 1998, V38(11), P1862 HCA
(33) Matuana, L; Wood Fiber Sci 1999, V31(2), P116 HCA
(34) McNeill, I; Polym Degrad Stab 1995, V49(1), P181 HCA
(35) Muller, M; J Appl Polym Sci 2012, V124(6), P4542
(36) Ou, R; Composites Part A 2010, V41(9), P1272
(37) Park, S; J Colloid Interface Sci 2003, V267(1), P86 HCA
(38) Roje, U; J Appl Polym Sci 2000, V78(1), P166
(39) Shah, B; J Vinyl Addit Technol 2005, V11(4), P160 HCA
(40) Tungjitpornkull, S; J Mater Process Technol 2009, V209(6), P3079 HCA
(41) Tungjitpornkull, S; J Thermo Compos Mater 2007, V20(6), P535 HCA
(42) Vasile, C; Composites Part B 2013, V55, P314 CAPLUS
(43) Woodhams, R; Polym Eng Sci 1984, V24(15), P1166 HCA
(44) Xu, W; J Therm Anal Calorim 2004, V78(1), P91 HCA

(45) Yang, H; Fuel 2007, V86(12-13), P1781 HCA
(46) Yue, X; BioResources 2011, V6(2), P2022 HCA
(47) Zhang, Z; Composites Part B 2012, V43(2), P150 HCA
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