Influence of surface modified nano silica on alkyd binder before and after accelerated weathering - DTU Orbit (08/11/2017)

Influence of surface modified nano silica on alkyd binder before and after accelerated weathering

Introduction of nano fillers in exterior wood coatings is not straightforward. Influence on aging of polymer binder needs to be taken into account along with possible benefits that nano fillers can provide immediately after application. This study shows the influence of two differently modified hydrophobic nano silica on an alkyd binder for exterior wood coatings. One month after application, the highest strength and energy required to break the films was obtained with addition of 3% disilazane modified silica. Changes in tensile properties were accompanied with a small increase in glass transition temperature. However, the highest stability upon accelerated weathering, measured by ATR-IR and DMA, was for nano composites with the highest amount of nano filler. The reasons for the observed changes are discussed together with the appearance of a feature that is possibly a secondary relaxation of alkyd polymer.

General information
State: Published
Organisations: Department of Chemical and Biochemical Engineering, The Danish Polymer Centre, University of Copenhagen, Dyrup A/S
Pages: 134-143
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Polymer Degradation and Stability
Volume: 126
ISSN (Print): 0141-3910
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 1.029 SNIP 1.582 CiteScore 3.57
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.22 SNIP 1.634 CiteScore 3.48
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.278 SNIP 1.888 CiteScore 3.37
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.341 SNIP 2.12 CiteScore 3.35
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.423 SNIP 2.105 CiteScore 3.25
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.347 SNIP 2.099 CiteScore 3.17
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.237 SNIP 1.642
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 1.349 SNIP 1.623
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 1.281 SNIP 1.745
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.451 SNIP 1.557
Scopus rating (2006): SJR 1.367 SNIP 1.787
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.197 SNIP 1.461
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 1.062 SNIP 1.43
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 0.922 SNIP 1.24
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 0.821 SNIP 1.058
Scopus rating (2001): SJR 0.93 SNIP 1.151
Scopus rating (2000): SJR 0.685 SNIP 1.077
Scopus rating (1999): SJR 0.75 SNIP 1.194
Original language: English

Accelerated weathering, Alkyd, Exterior wood coatings, Nano silica, Nanocomposites, Surface modification

DOIs:
10.1016/j.polymdegradstab.2016.02.006
Source: Findit
Source-ID: 2291906155
Publication: Research - peer-review › Journal article – Annual report year: 2016