Relating the molecular structure of comb-type superplasticizers to the compression rheology of MgO suspensions

We have investigated the effect of superplasticizers on the rheological properties of concentrated MgO suspensions. The comb-type anionic polymers with grafted polyethylene oxide chains adsorb onto the MgO surface and infer a steric repulsion where the range scales with the length of the PEO side chains. Consolidation experiments, where the volume fraction gradient of particle networks has been determined in response to a centrifugal force field, offer a simple, yet accurate, way of investigating flocculated, partly stabilized and stable suspensions under compression. The compression rheology behaviour could be related to the estimated thickness of the adsorbed superplasticizers and a scaling analysis was used to quantitatively assess the importance of the length of the grafted PEO-chains on the magnitude of the inter-particle bond strength.

General information
State: Published
Organisations: Section for Building Materials and Geotechnics, Department of Civil Engineering, Sika Technology AG, Stockholm University
Contributors: Kjeldsen, A. M., Flatt, R. J., Bergström, L.
Pages: 1231-1239
Publication date: 2006
Peer-reviewed: Yes

Publication information
Journal: Cement and Concrete Research
Volume: 36
Issue number: 7
ISSN (Print): 0008-8846
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 6.08 SJR 4.223 SNIP 3.191
Web of Science (2017): Impact factor 5.43
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 5.15 SJR 3.462 SNIP 3.2
Web of Science (2016): Impact factor 4.762
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 4.54 SJR 3.549 SNIP 3.162
Web of Science (2015): Impact factor 3.48
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 4.44 SJR 4.128 SNIP 3.583
Web of Science (2014): Impact factor 2.864
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 4.54 SJR 4.219 SNIP 3.873
Web of Science (2013): Impact factor 3.848
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 3.92 SJR 3.54 SNIP 3.875
Web of Science (2012): Impact factor 3.112
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): CiteScore 3.77 SJR 2.079 SNIP 3.397
Web of Science (2011): Impact factor 2.781
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.549 SNIP 2.785
Web of Science (2010): Impact factor 2.187
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 2.361 SNIP 2.577
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 1.433 SNIP 1.95
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.606 SNIP 1.841
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.149 SNIP 1.949
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.875 SNIP 1.672
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 0.976 SNIP 1.678
Scopus rating (2003): SJR 0.672 SNIP 1.68
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 0.732 SNIP 1.308
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 0.727 SNIP 1.143
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 0.512 SNIP 1.418
Scopus rating (1999): SJR 0.584 SNIP 1.438
Original language: English
DOIs:
10.1016/j.cemconres.2006.03.019
Source: orbit
Source-ID: 184627
Research output: Research - peer-review › Journal article – Annual report year: 2005