Ain Shams University
Faculty of Science
Chemistry Department

Effect of some prepared superplasticizers on the rheology and setting time of the oil well cement slurries

A Thesis
Submitted to Department of Chemistry – Faculty of Science
Ain Shams University
By

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M.Sc. in Chemistry, Faculty of Science
Al-Azhar University
For the awarding of Ph.D Degree in Chemistry

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Approval Sheet

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Dedication

To my parents

To my dear wife

To my lovely kids

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Samir hosny shafek

ABBREVIATIONS

Symbol	Description
C_3S	Tricalcium silicate (Alite phase)
β–C_2S	β – dicalcium silicate (Belite phase)
C_3A	Tricalcium aluminate (Auminate phase)
C_4AF	Tetracalcium aluminoferrite (Ferrite phase)
HPC	High performance concrete
OWC	Oil well cement
SCM	Supplementary cementitious material
HSR	High sulphate-resistant
MSR	Moderate sulphate resistant
OPC	Ordinary Portland cement
HPC	High performance concrete
XRD	X-ray diffraction
FTIR	Fourier transform infrared
DSC	Differential scanning calorimetry
SEM	Scanning electron microscopy
CSH	Calcium silicate hydrate

CH	Calcium hydroxide
$C\overline{C}$	Calcium carbonate
C_2AH_8 or C_4AH_{13}	Calcium aluminate hydrate
C_2ASH_8	Calcium aluminosilicate hydrate (gehlenite)
($C_3A.3C\overline{S}.32H$)	Calcium sulphoaluimonate hydrate (ettringite)
μ_p	Plastic viscosity
τ	Shear stress
τ_0	Yield stress
$\gamma\bullet$	Shear rate

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