

CONTENTS

ABSTRACT	3
ABSTRACT IN CZECH	4
CONTENTS	5
1 THEORETICAL BACKGROUND.....	6
1.1 Cement paste rheology	6
1.2 Role of superplasticizers.....	6
2 AIMS AND RESEARCH SIGNIFICANCE	8
3 THEORY OF METHOD.....	9
3.1 Cylindrical cell theory	10
4 MATERIALS AND METHODS.....	14
4.1 Calcium carbonate	14
4.2 Cement	14
4.3 Blast furnace slag.....	15
4.4 Dispersants.....	15
4.5 New polymers (dispersants).....	16
4.6 Centrifugation	16
4.7 Determination of sorption.....	17
4.8 Viscosity measurements.....	17
4.9 Calorimetric measurements	17
4.10 Regression analysis and the response surface designs	18
4.11 Determination of stress on the frontal surface (σ_x)	18
4.12 Determination of shear stress (τ)	19
5 RESULTS AND DISCUSSION.....	20
5.1 Effect of additives on the viscosity of suspensions determined on rotational viscometer	20
5.2 Influence of additives on the deformation parameters of suspensions under centrifugal forces.....	21
5.3 Comparison of the results determined by viscometer and centrifugation	21
5.4 The influence of centrifugal forces on deformation parameters of cement suspensions.....	22
5.5 Application for an alternative centrifugation method: An explanation of the action principle of organic plasticizer.....	24
5.6 New polymers as dispersants in cement pastes.....	30
6 CONCLUSIONS	33
REFERENCES	34
PUBLICATIONS	36
CURRICULUM VITAE.....	37