

**SODIUM LIGNOSULFONATE AND SODIUM
POLYACRYLATE MIXTURE AS A DISPERSING
AGENT FOR CALCIUM CARBONATE SUSPENSIONS**

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DECLARATION

I declare that this is my own work and this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgment is made in the text.

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ABSTRACT

Preparation of low viscous and high filler loaded calcium carbonate suspension in the aqueous medium is an industrial requirement. To minimize disturbance of handling and processing, to reduce transportation costs and to avoid transportation of excess water, calcium carbonate slurries need to be produced in high solid content.

The currently available dispersing agent is less efficient. Therefore an investigation was carried out to prepare an efficient dispersing agent. A different percentage of sodium lignosulfonate was used to mix with the sodium salt of poly (acrylate) to prepare combined dispersing agents. Dispersing agent samples were tested in calcium carbonate powder – water mixture at 45% solid content. Viscosity values vs adding dispersing dosage were measured with a Brookfield viscometer in order to select the more efficient dispersing combination. The maximum filler loading percentage was conducted base on the selected dispersing combination. Different shear rates were applied to higher filler loaded calcium carbonate suspension to the optimized most dispersed shear rate at the lowest viscosity. Final calcium carbonate suspension and temporary prepared suspension particle size, polydispersity index and zeta potential values were measured and compared.

The findings were then applied to prepare pilot-scale calcium carbonate suspension. The developed combined dispersing agent was more efficient. It was possible to prepare calcium carbonate suspension with high solid loading (75%) at low viscosities.

DEDICATION

To my loving Father and Mother

To my wife, who has supported in all my endeavors

To my lovely daughter

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LIST OF ABBREVIATIONS

SLS	Sodium Lignosulfonate
SSPA	Sodium Salt of Polyacrylate
TCCS	Temporary Calcium Carbonate Suspension
FCCS	Final Calcium Carbonate Suspension
PZ	Particle Size
ZP	Zeta potential
PI	Polydispersity Index

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