September 26, 2025

Reference: egusphere-2025-1157

Dear Editor and Reviewers,

We are pleased to submit a revised manuscript where the last point concerning the $\mu(I)$ -rheology model has been addressed. In particular, we have added a paragraph to section 2.8 explaining the use of this model beyond the idealized monodisperse case.

Additionally, we have taken the opportunity to improve figure placements within the manuscript.

A track-change document outlining the revisions we have made to the manuscript is included in this submission.

Thank you again for considering our manuscript.

Best regards, Lars Blatny On behalf of authors.