

Accepted Manuscript

Title: Demixing and evaporation from a mechanically distributed water-in-oil thin film emulsion

Authors: Carl-Mikael Tåg, Cathy J. Ridgway, Patrick A.C. Gane



PII: S0927-7757(17)30298-4
DOI: <http://dx.doi.org/doi:10.1016/j.colsurfa.2017.03.038>
Reference: COLSUA 21486

To appear in: *Colloids and Surfaces A: Physicochem. Eng. Aspects*

Received date: 18-12-2016
Revised date: 15-3-2017
Accepted date: 17-3-2017

Please cite this article as: Carl-Mikael Tåg, Cathy J. Ridgway, Patrick A.C. Gane, Demixing and evaporation from a mechanically distributed water-in-oil thin film emulsion, *Colloids and Surfaces A: Physicochemical and Engineering Aspects* <http://dx.doi.org/10.1016/j.colsurfa.2017.03.038>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Demixing and evaporation from a mechanically distributed water-in-oil thin film emulsion

Carl-Mikael Tåg^{1,*}, Cathy J. Ridgway³, Patrick A.C. Gane^{2,3}

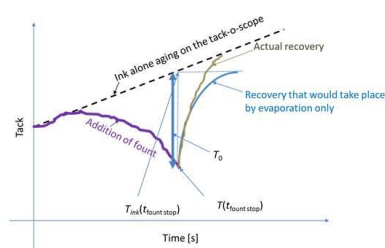
¹ Stora Enso Support Centre Mönchengladbach, DE-41600, Mönchengladbach, Germany

² School of Chemical Technology, Forest Products Technology, Aalto University, FI-00076 Aalto, Helsinki, Finland

³ Omya International AG, CH-4665 Oftringen, Switzerland

*Corresponding author. Email: carl-mikael.tag@storaenso.com

Graphical abstract



Highlights

- The role of emulsification on the evaporation from an aqueous water-in-oil emulsion
- Dynamics for different water-in-oil based systems
- Introduced correction factor for evaporation
- Model methodology to derive retained liquid amount after evaporation

Abstract

Evaporation of water from an alcohol/surfactant stabilised water-in-oil thin film emulsion, including transitioning from a state of excess water providing an oil-in-water precursor phase, has been studied using a printing ink application device. An ink rheology testing technique (TackOscope), incorporating the possibility to apply an aqueous liquid based on isopropyl alcohol and surfactant, termed fountain solution, to mix in an oil-based ink to create an emulsion in a twin roll nip, was used to provide

Download English Version:

<https://daneshyari.com/en/article/4982044>

Download Persian Version:

<https://daneshyari.com/article/4982044>

[Daneshyari.com](https://daneshyari.com)