

## Accepted Manuscript

Title: Dilational rheology of oil/water interfaces covered by amphiphilic polysaccharides derived from dextran

Authors: Jacques Desbrières, Edeluc López-Gonzalez, Antonio Aguilera-miguel, Véronique Sadtler, Philippe Marchal, Christophe Castel, Lionel Choplin, Alain Durand



PII: S0144-8617(17)31025-1  
DOI: <http://dx.doi.org/10.1016/j.carbpol.2017.09.011>  
Reference: CARP 12756

To appear in:

Received date: 20-6-2017  
Revised date: 5-9-2017  
Accepted date: 5-9-2017

Please cite this article as: Desbrières, Jacques., López-Gonzalez, Edeluc., Aguilera-miguel, Antonio., Sadtler, Véronique., Marchal, Philippe., Castel, Christophe., Choplin, Lionel., & Durand, Alain., Dilational rheology of oil/water interfaces covered by amphiphilic polysaccharides derived from dextran. *Carbohydrate Polymers* <http://dx.doi.org/10.1016/j.carbpol.2017.09.011>

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.

**Dilational rheology of oil/water interfaces covered by amphiphilic polysaccharides  
derived from dextran**

Jacques DESBRIÈRES<sup>1</sup>, Edeluc LÓPEZ-GONZALEZ<sup>2,3</sup>, Antonio AGUILERA-MIGUEL<sup>2,3</sup>,  
Véronique SADTLER<sup>2,3</sup>, Philippe MARCHAL<sup>2,3</sup>, Christophe CASTEL<sup>2,3</sup>, Lionel  
CHOPLIN<sup>2,3</sup>, Alain DURAND<sup>4,5\*</sup>

<sup>1</sup>Université de Pau et des Pays de l'Adour, IPREM (UMR 5254) F-64053 Pau, France

<sup>2</sup>CNRS, LRGP, UMR 7274, Nancy, F-54001, France

<sup>3</sup>Université de Lorraine, LRGP, UMR 7274, Nancy, F-54001, France

<sup>4</sup>CNRS, LCPM, UMR 7375, Nancy, F-54001, France

<sup>5</sup>Université de Lorraine, LCPM, UMR 7375, Nancy, F-54001, France

\*Corresponding Author: Alain Durand,

Tel: + 33 (0)3 72 74 37 01, Fax: + 33 (0)3 83 37 99 77,

Email: alain.durand@univ-lorraine.fr

### **Highlights**

- Dilational rheology of oil/water interface covered by modified dextrans was studied
- Rheology and kinetics of adsorption were well described by diffusion-limited models
- The role of hydrophobic modification was depicted qualitatively and quantitatively
- Modified dextrans were compared to common commercial stabilizers with block structure

### **Abstract**

This work studied the adsorption at dodecane/water interface of amphiphilic polysaccharides derived from dextran (a nonionic bacterial polysaccharide) by random attachment of phenoxy groups along the chains (between 10 and 20 attached phenoxy groups per 100 glucose repeat units). The long-time kinetics of interfacial tension decrease was satisfactorily described assuming diffusion-limited adsorption of hydrophobic units (over 4 hours). Dilational rheology of dodecane/water interface was studied for the first time with that kind of amphiphilic polysaccharides and evidenced a significant elastic component. For all dextran derivatives,

Download English Version:

<https://daneshyari.com/en/article/5156526>

Download Persian Version:

<https://daneshyari.com/article/5156526>

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