Dear Sylvie

Editor

ICHMT

We have gone through reviewer’s comments and addressed each.

Our responses are coloured in blue.

The changes in manuscript are highlighted in green.

We are looking forward to have your positive recommendation.

Regards,

Milad

Milad Asgarpour Khansary,

Confirm Smart Manufacturing, University of Limerick, Limerick, Ireland

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| Date: | May 24, 2020 |
| To: | "Milad Asgarpour Khansary" milad.asgarpour@ul.ie |
| From: | "International Communications On Heat & Mass Transfer" ichmtjm@elsevier.com |
| Subject: | Your Submission |

Ref.: Ms. No. ICHMT-D-20-00175  
A note on the composition-dependency of the density within the mass transfer layer  
International Communications in Heat and Mass Transfer  
  
Your revision is due by Jun 23, 2020.  
  
Comments from the Editors and Reviewers:  
Reviewer 1: The authors have developed a modelling methodology for prediction of mass transfer in thin film layers. The model is based on composition-dependency of density in the layer. The idea is novel and interesting and can imrpove the mass transfer investigation for design and optimization of reaction and separation processes. The paper merits publication. Please consider my comments prior to acceptance:  
1. the writing needs to be improved.

We have gone through the manuscript and checked it against typo and grammatical errors.   
2. Please mention the main novelty of the current study in comparison to other similar mass transfer models.

Conventionally, the total density in the mass transfer layer of a binary mixture has been assumed constant which is not correct. This paper addressed this issue.   
3. What is the limitations of this model in prediction of mass transfer behaviour?  
We considered a linear relationship for density and mass fraction, which is sufficiently enough for mass transfer processes of concern. Higher order dependency is rare, so not addressed here.   
  
Reviewer 2: The paper proposed the new method of explicit composition dependency introduced for the density within the mass transfer layer. The paper was well written with detailed and clear analysis. I recommended this paper to be accepted with following minor revision:  
1. In what condition the composition dependency density is in linear distribution.

Higher order dependency is rare, so not addressed here. The density-composition profile highly depends on the system of interest and the composition. a linear relationship for density and mass fraction, which is sufficiently enough for mass transfer processes of concern. But the conventionally assumed constant density is not correct.   
2. Except for the expansion coefficient, is temperature denpendency available for the modified model? Because temperature is also the most important parameter for material property.

The mass transfer layer is thin and the temperature variation in such small thickness is negligible (temperature of film, not operating temperature). But, for interest of theoretical analysis, the same approach can be applied for a temperature-density profile.