

Abstract Submitted  
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**Convection in Binary Mixtures with Negative Soret Effect**

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B-1050 Brussels, Belgium, MRC TEAM — Double diffusive convection in a cubic  
cell filled with a binary mixture of water and isopropanol is numerically analyzed.  
The system is heated from above while the Soret coefficient, i.e. thermodiffusion, is  
negative. Negative Soret effect corresponds to component separation in binary mix-  
tures with the denser component migrating to the hot wall. In the case of heating  
from above density stratification is stable in a pure liquid. However in the case of  
a binary mixture with negative Soret effect unstable density stratification is estab-  
lished in the system. Due to negative Soret effect the heavier liquid is accumulated  
on the top of the lighter one. At some moment this unstable stratification leads  
to the appearing of motion in the liquid volume. 3D numerical simulations of the  
non-linear time-dependent Navier-Stokes, heat and mass transfer equations were  
performed. The parameters of the system correspond to a realistic binary mixture  
enabling comparison of theoretical predictions with planned experimental studies;  
Schmidt and Prandtl numbers are  $Sc=1620$ ,  $Pr=10.85$ . The development of fluid  
motion in space and time is analyzed to identify the underlying physical mechanisms  
leading to instability.

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