

عنوان مقاله:

VOC level control by ventilation improvement of Flexography printing room using CFD modeling

محل انتشار:

مجله مکانیک کاربردی و محاسباتی، دوره 3، شماره 3 (سال: 1396)

تعداد صفحات اصل مقاله: 7

نویسندگان:

Kamal Hadad - School of Mechanical Engineering, Shiraz University, Shiraz, Iran

Hamid Reza Eidi - Printing Management, International Imam Reza University, Mashhad, Iran

Javad Mokhtari

خلاصه مقاله:

Using Computational Fluid Dynamics (CFD) technique, the dispersion contours and the exposure rate of Flexographic printing workers to VOCs in a printing department is evaluated. Firstly, VOCs distribution is determined in the printing room due to the existing ventilation system. Through next steps, 4 scenarios for lowering VOCs concentration and its exposure rate to workers are analyzed. Concentration distributions of ethylene glycol (MEG) as a representative of VOCs are determined for 4 scenarios. The results show that, regarding the existing ventilation, the concentration of MEG at the breathing height is 1×10^{-5} mg/m³ and it is higher than the standard permissible level. Finally, the findings of this study lead to lowered VOCs concentrations to 13.87×10^{-9} mg/m³ via changing the ventilation system for the Flexography Printing Room

کلمات کلیدی:

CDF, VOCs pollution, Numerical modeling, Turbulence, Flexography printing

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/719823>

