

## PS-025. Investigation and Measurement of Volatile Organic Compounds (VOC) at indoor Quality of Working Places which contain Paint-based Biocidal Products

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**Purpose:** The quality of air inside enclosed spaces, especially in industrial workplaces, has become a matter of growing concern over the last two decades. Volatile organic compounds (VOCs) in confined spaces are the most threatening pollutants for both the environment and human health, and paint-based biocidal products are significant VOC sources. Our main purpose of study is to measure and analyze indoor VOC in dyeing sector and evaluate the findings according to the occupational health and safety regulations. Therefore, we can find out how is the effect of biocidal products on VOCs. **Method:** Turkish standards ISO 16200-1 (Workplace air quality - Sampling and analysis of volatile organic compounds by solvent desorption/gas chromatography - Part 1: Pumped sampling method) were used to take and analyze samples from workplaces. **Findings:** Samples were taken from paint shop, paint dryer room, ventilation unit and carpentry workshop in a furniture manufacture factory. Paint products are intensely used in paint shop, which results in VOC level in paint shop is the highest. For instance, toluene levels in paint shop, paint dryer room, ventilation unit and carpentry workshop are respectively 114.21, 84.00, 18.00 and 2,10 mg/m<sup>3</sup>. Other than toluene, the most noticeable VOCs are chlorobenzene, m-xylene, chloroform and 1,1-dichloroethane. In ventilation unit and carpentry workshop, these VOCs are under permissible exposure limits which are regulated by OSHA (Occupational Health and Safety Administration). However, chlorobenzene level (203.17 mg/m<sup>3</sup>) in paint shop is higher than the permissible exposure limit (46 mg/m<sup>3</sup>). **Result:** The study shows that when paintwork is intense (paintshop), the emission is the highest. As a result, we can observe that paint-based biocidal products raise VOC level.

**Keywords:** Indoor air quality, volatile organic compounds, paints emission, biocidal products