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Indoor air quality (IAQ) in a naval ship after refit program: a time variation analysis
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Abstract
Refurbishments of the ship's external and internal structures are the main scopes of a refit program. These activities may affect the indoor air quality (IAQ) inside ships and increase the indoor air pollutants (IAP) concentrations onboard. Therefore, continuous IAQ monitoring is needed to determine IAP exposure to the ship's crew. This study evaluates the changes in IAQ conditions inside a naval ship over a two-time interval to determine the effect of compliance with the recommended engineering control measures proposed in the first assessment. Following the standard of the Industry Code of Practice on Indoor Air Quality 2010 (ICOP on IAQ 2010), seven IAQ parameters (temperature, relative humidity (RH), carbon dioxide (CO2), respirable particulates/particulate matter (PM10), total volatile organic compounds (TVOC), bacterial count, and fungal count) were measured in two assessment phases. The first phase was conducted after the ship completed the refit program, and the second phase began three months later, following the execution of the recommended engineering control measures. According to the findings of this study, all IAQ parameters improved when compared to the first phase assessment. However, some of the readings were still non-compliance with the standards of ICOP on IAQ 2010. In conclusion, the ship's IAQ parameters were improved following the recommended engineering control measures, although more enhanced approaches were required to ensure all parameters complied with the ICOP on IAQ 2010. © Published under licence by IOP Publishing Ltd.

Author Keywords
Engineering control; Indoor air quality (IAQ); Naval ship; Ship refit program.

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