Proceedings of the ISymRU 2021
Interdisciplinary Studies: Poster Presentation

Prevalence of Unsafe Practices in Air Conditioning and Refrigeration Maintenance Industry in Sri Lanka

Rifan L. M.[1] ✉, Attanayake A. M. R. N.[2], Wickramasinghe I. P. M.[1]

Abstract

Refrigerant emissions are one of the major threats to the environment as well as to the humans. The unsafe emissions of refrigerant directly or indirectly have been identified to cause ozone layer depletion and global warming which is detrimental to life on earth. Therefore, identification of the underlying causes of such emissions may help avoiding environmental disasters. The authors hypothesize that the knowledge and attitudes of personnel in refrigeration and air conditioning (RAC) maintenance industry towards the associated environmental effects play a significant role in causing such inadvertent emissions to the environment. The RAC maintenance industries are not uniformly regulated globally. In Sri Lanka, use of air conditioners and refrigerators are steadily increasing. However, there is little or no regulation in place to make sure the environmental safety in relation to the unsafe refrigerant emissions. Data was gathered from 105 technicians and 35 managerial level employees in the RAC sector through structured questionnaires from all over the Sri Lanka. The study provides an insight into the knowledge base and current malpractices in the RAC maintenance industry in Sri Lanka. Besides, it facilitates the identification of each employees' contribution towards the emission of refrigerants and further evaluate the scale of self-realization of the social responsibilities in this regard. From the study, it was found that, 91.4% of maintenance industries does not have any training program for new recruits. Also, the unavailability of refrigerant recycling or recovery systems was seen in 94.3% of the cases. Furthermore, 88.6% of RAC maintenance industries were found to instruct their employees to emit the refrigerants directly into the environment before refilling new refrigerants. Consequently, 92.4% of technicians directly emit the refrigerants to the environment. In addition, 79% of technicians were not familiar with the use of recovery machines to remove refrigerants from cooling appliances. According to the key results and significant outcomes, it is concluded that improper refrigerant handling, poor training programs, insufficient awareness on effects of refrigerant emissions and lack of knowledge on recovery machine are key factors affecting unsafe refrigerant emissions in Sri Lanka.

Keywords: *Environmental and health effects, knowledge and attitude, refrigerants*

[1] Department of Mechanical and Manufacturing Technology, Faculty of Technology, Wayamba University of Sri Lanka, Sri Lanka
[2] Mechanical Technology Division, University College of Kuliyapitiya, Kuliyapitiya, Sri Lanka
✉ Corresponding Author: rifanmhmd214@gmail.com