

**OCCUPATIONAL HEALTH IMPACT OF USING
CHEMICALS IN RUBBER MIXING PROCESS OF TYRE
MANUFACTURING: GAP ANALYSIS OF CURRENT
PRACTICES**

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MSc/PG Diploma in Occupational Safety and Health Management**

**Department of Building Economics
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Declaration

I declare that this is my own work. This thesis/dissertation does not incorporate without acknowledgement of any material previously submitted for a degree or diploma in any other University or Institute of higher learning. To the best of my knowledge and belief, it does not contain any material previously published or written by another person except where the reference is made in the text. I retain the right to use this content in whole or part in future work (such as articles or books).

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The above candidate has carried out research for the master's thesis/dissertation under my supervision. I confirm that the declaration made above by the student is true and correct.

Name of Supervisor: Prof (Mrs.) Nayantara De Silva

Signature of the Supervisor:

Date

ABSTRACT

The rubber industry is a global powerhouse, producing both natural and synthetic rubber for use in a wide range of products, including tyres. Sulphite, acids, bleaching agents, diammonium hydrogen phosphate, tetramethyl thiuram disulphide and zinc oxide are only a few of the chemicals used in the making of tyres, all of which have the potential to cause harm to humans and the environment. Rubber sector workers are exposed to numerous physical and mental health threats, especially stress, that may alter their hormone levels and weaken their immune systems. However, the threats to workers' health during the rubber mixing process in tyre manufacture are little understood. The researcher conducted interviews as a part of the data-gathering process for this study. Data collection was performed through interviews with a subset of the population picked randomly. This research examines how the chemicals used in tyre manufacturing process affect human health, steps to reduce those effects and whether there are discrepancies with international norms.

Expert interviews were conducted to assess the stipulated occupational safety and health aspects in the tyre manufacturing process across four broad categories: machine needs, worker behaviours, management responsibilities and PPE (personal protective equipment) usage. The research findings imply that technical factors and worker behaviours have a considerably higher effect than managerial responsibility and use of personal protective equipment on safety and health. Further, lack of effective methodologies for measuring environmental contamination and poor use of personal protective equipment are of higher concerns. Due to Workers not wearing protective gears they expose to unexpected danger on the job. Regular health evaluations, use of adequate personal protective equipment and training programmes are advised to improve workers' health and safety in chemical mixing operations. Similar attention is recommended to prevent exposure to dangerous chemicals and accidents by designing and implementing effective ventilation systems and safe handling practices of chemicals. Also, it is recommended to go for alternative chemicals which has low risk to the workers.

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Key Words: Rubber Industry, Occupational Health and Safety, PPEs, Environmental
Pollutants

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