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VEERASAK LOATRAKUL : BACTERIAL CONTAMINATION IN REUSED DRINKING WATER CONTAINERS, COMPARATIVE BETWEEN RECTANGULAR AND CYLINDRICAL. THESIS ADVISORS : ASSO. PROF. RAPEEPAN CHALONGSUK AND CHANTANA WESSAPAN. 135 pp. ISBN 974-653-101-8

The objective of this research was to compare bacterial contamination of different reusable twenty-litre water containers which are made from high density polyethylene (HDPE). The shapes of the containers were rectangular and cylindrical structures. The data was obtained by both interviews and reports from 21 drinking-water manufacturers. The water was collected from a rinse of the containers which were obtained after the washing process. The total number of collected data was 1260 which came from an equal number of 30 of a rectangular and a cylindrical shape. The bacterial coliform were analyzed by the Multiple Tube Fermentation Technique. The results were compared statistically.

The bacterial contamination of the rectangular shaped containers (25.40 %) was higher than the cylindrical shaped containers (19.84 %). The criteria for a comparison was the presence of an amount greater than 2.2 MPN coliform per 100 millilitres of water. The average numbers of coliform bacteria from the rectangular and the cylindrical shaped containers were 107.91 and 86.43 respectively. Even that amount of bacterial contamination from both shapes was not statistically different ($p = 0.018$). The *E. coli* contamination was hardly found from both shapes but the rate of finding from the rectangular shaped containers (6.67 %) was a little bit higher than the cylindrical shaped containers (4.92 %) which was not statistically different ($p = 0.228$).

The intended application for this research was to select the criteria for choosing a shape of reusable container which would exceed the minimum legal standard set for plastic container.