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A study on the calculation of eco toxicity potential of major construction waste in construction phase through life cycle assessment

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As the importance of eco toxicity reduction in the construction industry has come to the fore, there is an increasing interest about life cycle assessment that comprehensively assesses environmental impact of buildings from production phase to demolition phase. As a part of this effort, eco-friendly production systems in construction phase are being presented to minimize eco toxicity potential from the life cycle perspective. As construction wastes are responsible for the most of overall wastes and rate of increase in wastes, management of construction wastes is more importantly required. However, practical management standards have not been established on construction wastes generated in construction phase. Accordingly, The purpose of this study is to calculation of eco toxicitiy potential of major construction waste in construction phase through life cycle assessment as part of an effort to develop an eco toxicitiy potential assessment program for buildings. To accomplish this, the amount of construction waste discharged in the construction phase was analyzed using loss rate and weight conversion factor in the Standard of Estimate for Construction Works. And the theoretical consideration of the life cycle assessment and environmental impact category was performed and the direction of the study was set up. The classification was performed about substance and impact index, such as Dichlorobenzene($C_6H_4Cl_2$) which is the base substance based on the impact indexes suggested by the CML2001. And the environmental impact of eco toxicity potential for the construction waste was calculated through the characterization. Meanwhile, the environmental impact of construction waste in the same category was analyze based on the characterization impact which was calculated in this study.

Biography

Prof. Tae has completed his PhD University of Tokyo in 2005. He has focussed his research on development of sustainable construction materials, structure LCA program, development of sustainable durability design system and structure optimum design technology. He has developed many Environmental loads evaluation program such as SUSB-LCA, BEGAS and STEP-B. He is the main author of over 50 SCI papers. He is a director of Sustainable Building Research Center (ERC). And He is also a board member of the International Sustainability Council, Committee of Korea Industrial Standards Commission (ISO TC 184/SC 5), ISO/Fairness Committee, Journal Editorial Committee of Architectural Institute Korea, Green Store Institution Committee and Green Building Certificate Deliberation Committee of Korea Environmental Industry Technology Institute.

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