

## Multifactor correlation analysis and modeling for product low carbon design

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Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20495948&lokasi=lokal>

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Abstrak

**ABSTRACT**

Low carbon design is a process of contradiction coordination, which involves multiple factors and necessitates abundant design knowledge and rules. We proposed the method that integrated the case based reasoning CBR method and extension theory to achieve low carbon design for products. In this paper, our work is on analyzing the design constraints, and carbon design for products. In this paper, our work is on analyzing the design constraints, and constructing the parameters modeling for representation of product cases. Firstly, we discussed the correlation among factors, and mapped the requirement onto the detailed physical structure. Secondly, we integrated the improved activity based costing and carbon method and the indirect calculation method to estimate the carbon footprint and cost of each phase in product life cycle. We adopted the basic element model to represent the product cases and used the dependent function to discriminate the extent of compliance with the requirement. In final, the applicability of proposed method was demonstrated through a case study of a screw air compressor.