# Analysis of the influence of thickness on fire reaction performance in polyisocyanurate core sandwich panels

Michel Murillo A.; Bernardo F. Tutikian; Roberto Christ; Luis F. O. Silva; Makeli Maschen; Leandro Gómez P.; Marcos L. S. Oliveira

## Abstract

Sandwich panels (also known as insulated panels) have been traditionally used for industrial buildings and warehouses, but nowadays are being increasingly a favorable choice in building construction, mainly in wall cladding and roofing systems. This paper presents the results of an experimental and statistical comparative analysis of Fire Reaction development in sandwich panels consisting of steel sheeting and Polyisocyanurate (PIR) foam core. All these PIR core sandwich panels with joints kept the same dimensions (1000 mm × 1500 mm) + (500 mm × 1500 mm), but different thicknesses (30, 50, 100 and 150 mm). Five Single Burning Item (SBI) tests were carried out on individual PIR sandwich panels with vertical joints and their results were compared between themselves. It was possible to observe through an analysis of variance that there is an influence of the sample thickness in the individual results of the SBI test parameters; however, this variability has no significant influence on the Fire Reaction performance of the samples. Overall, the importance of these alternative sandwich panels is the increase in performance in the constructive processes and the offered comfort through its thermal insulation characteristics.

## Keywords

Analysis of variance; Core sandwich panel; Fire reaction; PIR foam; SBI test