



Experimental Characterization of Helium Dispersion in a -Scale Two-Car Residential Garage (Nist TN 1694)

By Nist

Createspace, United States, 2014. Paperback. Book Condition: New. 279 x 216 mm. Language: English . Brand New Book ***** Print on Demand *****.A series of experiments are described in which helium was released at constant rates into a 1.5 m 1.5 m 0.75 m enclosure designed as a -scale model of a two car garage. The purpose was to provide reference data sets for testing and validating computational fluid dynamics (CFD) models and to experimentally characterize the effects of a number of variables on the mixing behavior within an enclosure and the exchange of helium with the surroundings. Helium was used as a surrogate for hydrogen, and the total volume released was scaled as the amount that could be released by a typical hydrogen-fueled automobile with a full fuel tank. Temporal profiles of helium were measured at seven vertical locations within the enclosure during and following one hour and four hour releases. Idealized vents in one wall sized to provide air exchange rates typical of actual garages were used. The effects of vent size, number, and location were investigated using three different vent combinations. The dependence on leak location was considered by releasing helium from three different points within the...



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