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Experimental Evaluation of Dust Mask Performance SEJIN CHOI, RYEOL PARK, NAMKEON HUR, WONJUNG KIM, Department of Mechanical Engineering, Sogang University — The fine dust in contaminated air can accumulate in the respiratory organs in the human body and cause various diseases. Various types of masks for filtering fine dust are commercially available. Given the trade-off between the filtering performance and wearing comfort, the physical understanding of respiratory mechanics through a mask is important in assessing the performance of the masks in mask design. We suggest an experimental setup to evaluate the filtering performance and wearing comfort of dust masks. By constructing a respiration simulator, we measure dust particles that are filtered by a mask and quantify the respiratory resistance in terms of the power required for respiration. We analyze the effects of additional elements such as fans and valves attached to the mask to assist respiration.

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