

# Proceedings of the Iowa Academy of Science

---

Volume 39 | Annual Issue

Article 59

---

1932

## Variation of Acoustic Absorption Caused by Different Surface Treatments of Insulation Board

H. J. Plagge  
*Iowa State College*

Edward Richard Wittemore  
*Iowa State College*

L. K. Arnold  
*Iowa State College*

Copyright ©1932 Iowa Academy of Science, Inc.

Follow this and additional works at: <https://scholarworks.uni.edu/pias>

---

### Recommended Citation

Plagge, H. J.; Wittemore, Edward Richard; and Arnold, L. K. (1932) "Variation of Acoustic Absorption Caused by Different Surface Treatments of Insulation Board," *Proceedings of the Iowa Academy of Science*, 39(1), 219-219.

Available at: <https://scholarworks.uni.edu/pias/vol39/iss1/59>

This Research is brought to you for free and open access by the Iowa Academy of Science at UNI ScholarWorks. It has been accepted for inclusion in Proceedings of the Iowa Academy of Science by an authorized editor of UNI ScholarWorks. For more information, please contact [scholarworks@uni.edu](mailto:scholarworks@uni.edu).

## VARIATION OF ACOUSTIC ABSORPTION CAUSED BY DIFFERENT SURFACE TREATMENTS OF INSULATION BOARD

H. J. PLAGGE, EDWARD RICHARD WITTEMORE, L. K. ARNOLD

An investigation was made of the acoustic absorption coefficient of insulation board made from cornstalk pulp. The chief interest was to investigate the change in absorption coefficient due to progressive alteration of the surface of the board. The specimen boards were one foot square and one inch thick and the absorption was determined for plain board, beveled board, board with a few shallow grooves, with many grooves, and finally with deep grooves. These changes were made progressively on the same boards in order to eliminate variations caused by differences in structure which might otherwise occur.

It was anticipated that the coefficient of absorption would be increased by cutting grooves in the board, but prior to this study no definite data had been found in the literature showing how the absorption varies with a progressive variation of surface treatment. Such data are desirable since they make possible the design of acoustical absorption material of definite desired characteristics.

Percentage variation of absorption coefficient, due to each of the alterations of surface, are shown. The variation of the coefficient itself was from 0.32 to 0.60. Results of the investigation are shown by four graphs.

DEPARTMENT OF PHYSICS,  
IOWA STATE COLLEGE,  
AMES, IOWA.

---

## VARIATIONS OF INTENSITIES OF THE VISIBLE AND OF THE ULTRA VIOLET IN SUNLIGHT AND IN SKYLIGHT

WILLIAM KUNERTH AND RUSSEL D. MILLER

The amounts of radiations received from the sun at 42° N. latitude at various hours of the day throughout the year, both in the visible spectrum and in the ultra violet, were determined experimentally. Curves are plotted and tables are given to show what percent of the total comes from the sky alone in each of these regions of the spectrum. From these data, one may determine the relative amounts of ultra violet or visible radiations received at any two periods of the day or year either from sun and sky combined or from one of these alone.

DEPARTMENT OF PHYSICS,  
IOWA STATE COLLEGE,  
AMES, IOWA.