

②(永尾班)

## Relationship Between Wood's Roughness and Water Content

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### Abstract

We focused on the amount of water in a wooden block as an important condition to make our experiment more accurate to demonstrate that the adhesion theory of friction can be established at a macro-scale. we conducted an experiment to determine if the amount of water in wood affected its frictional coefficient.

### 1 Introduction

Our aim was to demonstrate the adhesion theory of friction using our experimental sliding apparatus.

### 2 Theory and Experiment

1. Two wooden blocks were prepared by sanding them identically
2. The amount of water in both wooden blocks was adjusted, with one stored in a desiccator and the other was stored in a dry laboratory environment.
3. We secured a 50-gram weight to each wood block to prevent slipping.
4. The wooden blocks were placed on the experimental apparatus, and the inclination angle gradually increased from being flat until the block started to slip.
5. The angle at which the blocks slid was then measured, and the experiment was repeated 10 times each

### 3 Results

Neither of the two wooden blocks' friction value was significantly different in ten experiments.

### 4 Discussion

Because the shortage of time, our experiment is still not perfect. We must conduct more experiments repeatedly.

### 5 Conclusion

We found out we found no relationship between the amount of water in wooden block, and the frictional coefficient.

### 6 References

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