Physics example lab report

Business

Introduction.

Friction was studied in this lab. The experiments were conducted using a clipboard glued to various surfaces with diffirentiating frictional properties. In order for us to test the varying Static friction or Kinetic friction we used a Newton force gauge, some wooden blocks, and a metal weight. The actual experiment consisted of two parts. The first part measured the net force, or more specific the net force required to overcome the kinetic friction coefficient, to move the block across the frictional surfaces (the Clipboard itself, cork, rubber, and sandpaper).

The second used inclined angles and the length of the clipboard to measure the static friction coefficient using the equation Tan(N0)= MuStatic.

Theoretical analysis. In this lab report we measured the kinetic and static coefficients of friction. The hypothesis suggested that the net force requirment of a moving object at a constant speed across a frictional surface is less than the initial force required to start the object into motion due to the frictional coefficients respectivly.

The following are the tables of data compiled from the experiments. Data Collection, Analysis and Results.

Net Force required to move the following objects across the frictional surfaces: Data Collected: Clipboard: Cork: Rubber: Sandpaper: 1 Block. 1N. 2N. 2N. 3N 2 Blocks.

2N. 4N. 5N. 6N 2 Blocks & Weight. 3N.

6N. 7N1. 0N Kinetic friction coefficients calculated using the frictional force equation {FR=(Mu)(FN)}. Clipboard: Cork: Rubber: Sandpaper: 1 BlockMu= . 2 Mu= . 45Mu= .

45Mu= . 68 2 BlocksMu= . 23 Mu= . 46Mu= . 57Mu= . 68 2 Blocks & WeightMu= .

22 Mu= . 43Mu= . 51Mu= . 72 Static Friction Coefficients calculated: Clipboard: Cork: Rubber: Sandpaper: 1 BlockMu= . 52Mu= . 63Mu= 1.

2Mu= 1. 46 Note: (All calculations done in detail on the next page.) Conclusion: After collecting data and comparing the results in the tables above I concluded that the Hypothesis was indeed correct.

The coefficient of static friction is, in-fact, always going to be higher than Kinetic friction. Thus resulting in a higher Net force to get the obejct moving to begin with. Collected data calculations.

formulas: TF=(M)(A) FF=(Mu)(Fn) Sin-1(Leg/Hyp)= N0 MuStat= Tan(N0) Kinetic friction coefficient (Mukinetic.) calculations. One Block Clipboard: . 1N/. 44= . 22 Cork: .

2N/. 44= . 45 Rubber: . 2N/. 44= .

45 Sandpaper: . 3N/. 44= . 68 Two Blocks Clipboard: . 2N/.

88= . 23 Cork: . 4N/. 88= . 46 Rubber: . N/.

88= . 57 Sandpaper: . 6N/. 88= . 68 Two Blocks & Weight Clipboard: . 3N/1.

38= . 22 Cork: . 6N/1. 38= . 43 Rubber: .

7N/1. 38= . 51 Sandpaper: 1. 0N/1. 38= .

72 Static Friction coefficient (MuStatic) calculations. Clipboard: (9. 0/19. 5)= . 46, Sin-1(.

46)= 270, Tan(270)= MuStatic= . 52 Cork: (10. 5/19. 5)= . 53, Sin-1(. 53)= 320, Tan(320)= MuStatic= .

63 Rubber: (15. 0/19. 5)= . 76, Sin-1(. 76)= 49. 40, Tan(49.

40)= MuStatic= 1. 2 Sandpaper: (16/19. 5)= . 82, Sin-1(. 82)= 550, Tan(550)= MuStaic= 1.

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