

Lab report: friction

Business



In the last experiment, relation between mass of an object or the net force with acceleration was defined. Another type of force acting on a system is to be discussed in this experiment. When two objects interact by touching or contacting each other, interaction is said to be subjected to contact forces.

Among those contact forces, we have normal force and frictional force.

Normal forces are forces acting perpendicularly towards the object. It is due to molecules of the surface is resisting the molecules of the object squeezed on it. Principal concern in this experiment is the frictional force.

The use of oil in a car engine, the use of right lubrication in skating as well as in basketball, the screeching sound of a sudden stopping car are all occurrences which is exploited by friction in the reality.

Meanwhile, frictional force is component acting on them. It acts parallel to the interface or the surface of contact. Furthermore, this force acts to oppose any relative motion between surfaces. Thus, it is a force which resists the relative motion of one surface in contact with another. This force is not only exerted by one object but between the contacting surfaces.

One good example of this is the air drag – the frictional force exerted by the air on body moving through it. Frictional force is occurring in the same way as the normal force. When an object is laid on a surface, molecules of the object will form very little bonds with the molecules of the surface. First part of the experiment deals with the determination of coefficient of friction of motion of a moving object. Tension force pulling the wooden block is associated by mass carried by pan and the gravity.

It is gradually increased until object moves with constant velocity.

At those times that the object is not yet moving, static frictional force is present. It is not constant. We added some load but still, it is not yet moving. By that, static frictional force is equal to the force to the tension force applied thus, capable of contradicting the force.

The static frictional force will continually increase as load is added until it reaches the maximum force that the static frictional force can exert. It is also known as $(f_s)_{\max}$. When a frictional force is at its maximum, the body in question will either be moving or will be on the verge of moving.

At this point, when the object starts to move with constant velocity, the frictional force will be present is now kinetic frictional force, f_k . It is easier to move an object in motion rather than starting with stationary object.

It is because $f_s > f_k$, usually. In connect with this, we have coefficient of friction is represented by symbol μ which is a dimensionless scalar value.

The coefficient of friction (static or kinetic) is a measure of how difficult it is to slide a material of one kind over another; the coefficient of friction applies to a pair of materials and not simply to one object by itself.