

Coefficients of Static Friction Data Sheet

Option A: Box and Basket

Trial 1:	Total mass of box (kg)	Total mass of basket (kg)

Trial 2:	Total mass of box (kg)	Total mass of basket (kg)

Trial 3:	Total mass of box (kg)	Total mass of basket (kg)

Trial 4:	Total mass of box (kg)	Total mass of basket (kg)

Option A: Calculations

1. Calculate the normal force acting on the box.

$$F_{N(box)} = F_{g(box)}$$

$$F_{N(box)} = m_{(box)}g$$

The force of static friction is less than or equal to the applied force acting on the box (the force of gravity of the basket) when the box starts moving.

2. Calculate the coefficient of static friction using the normal force of the box and the force of friction acting on the box.

$$F_f = m_{(basket)}g$$

$$\mu_s = \frac{F_f}{F_N}$$

Trial 1
Average $\mu_s =$

Trial 2
Average $\mu_s =$

Trial 3
Average $\mu_s =$

Trial 4
Average $\mu_s =$

Option B: Ramp

Trial 1:	“Rise”	“Run”

Trial 2:	“Rise”	“Run”

Trial 3:	“Rise”	“Run”

Trial 4:	“Rise”	“Run”

1. Calculate the slope of the ramp.

$$\text{slope} = \frac{\text{rise}}{\text{run}}$$

In this case, the slope is equal to the coefficient of static friction.

Trial 1
Average $\mu_s =$

Trial 2
Average $\mu_s =$

Trial 3
Average $\mu_s =$

Trial 4
Average $\mu_s =$