

You and a friend are doing the laundry when you unload the dryer and the discussion comes around to static electricity. Your friend wants to get some idea of the amount of charge that causes static cling. You immediately take two empty soda cans, which each have a mass of 120 grams, from the recycling bin. You tie the cans to the two ends of a string (one to each end) and hang the center of the string over a nail sticking out of the wall. Each can now hangs straight down 30 cm from the nail. You take your flannel shirt from the dryer and touch it to the cans, which are touching each other. The cans move apart until they hang stationary at an angle of 10° from the vertical. Assuming that there are equal amounts of charge on each can, you now calculate the amount of charge transferred from your shirt.