



Pet peeves about properties of common materials

I bet that most of you have used those clear plastic bags that are available in the produce section of grocery stores. Wouldn't you like to have access to a plastic produce bag that would open the first time you tried? The plastic produce bags at my grocery store are nice for carrying my produce. They tear apart from one another easily. They are transparent so that the checker can easily identify and properly price the produce. But just try to open the bag at the loose end. It sometimes takes me more time to get the bag open than it does to pick the produce that I want. How many times have I picked the perfect tomato or the perfect apple, only to drop it while struggling to open the bag.

I don't even know the name of my enemy. Why do the sides of the bag stick together so viciously? Is it related to stiction? Are the plastic layers so flat that they overlay closely enough so that van der Waals forces come into play? Is there some tiny demon, akin to Maxwell's demon, that produces some action that binds the sides together? Is

there some separation of charge that leads to localized Coulombic forces that keep the lips of the bag firmly closed? Is it an anomalous subnuclear effect in which quarks are shared

freely across the various plastic sheets binding them together with primordial forces understood only by God and various string theorists? Are the plastic molecules shaped like tiny Velcro hooks that bind and cling together until ripped asunder? Or are the bag materials just gooey (a highly technical term understood only by those with years of experience in materials research) enough to stick together.

I pick at the sides to pull them apart. I rub them together to try to get them to separate. Tribology is supposed to be our friend. There are probably people in the materials research community who understand the reasons for this cruel materials behavior. I hope that one of them will write in and explain it to the rest of us. I also hope that one of them will invent a better produce bag that is more friendly to the user and is affordable enough that my grocery store will buy them.

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