

Dyne Level – Surface Energy

Surface energy is a critical variable in the spreading and adhesion of inks, coatings and adhesives on a surface. To ensure that a fluid properly wets a surface, the surface energy of the surface must be higher than the surface tension of the fluid. If not, than the fluid will “bead up” instead of spreading.

We use a series of dyne pens containing fluids of different surface tensions to measure surface energy per ASTM test method D2578. If a line of test fluid is applied to the surface and it does not “bead up” within three seconds, the next higher surface-tension fluid should be tested. If the fluid “beads up” in under a second, then the next lower surface-tension fluid should be tested. If the line of fluid remains unbroken for one to three seconds, the surface tension of the fluid is nearly equal to the surface energy of the surface.

This test method is only appropriate for surfaces that are non-porous and non-absorptive of the test fluids.

