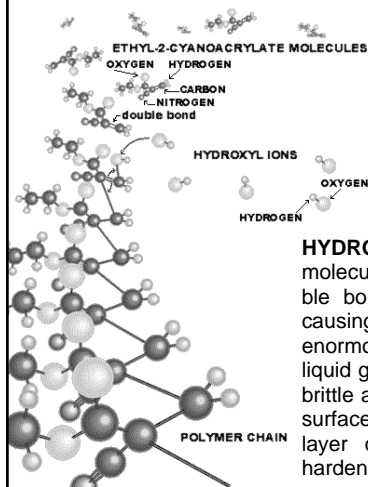


## How CA Glue Works

adapted from an article published in the  
"Working Knowledge" column of *Scientific American* (June 1999)  
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Nearly all glues are plastic polymers — giant molecules that cling to themselves and the surfaces they touch, like sauceless spaghetti noodles left overnight in a bowl. But while the plastic molecules in most household glues are dissolved in a liquid that evaporates as the glue dries, the molecules in cyanoacrylate glue do not form until the glue comes in contact with molecules of water on the surface of the material you are gluing. CA glue is almost pure ethyl-2-cyanoacrylate, a simple molecule that polymerizes rapidly when exposed to moisture. Each CA molecule contains an unusually fragile double bond between carbon atoms, one that is easily attacked by the hydroxyl ions found in most airborne moisture.



**HYDROXYL IONS** alter the CA molecules, transforming their double bonds into single bonds and causing them to stick together in enormous chains. As a result, the liquid glue quickly becomes a hard, brittle acrylic plastic. Because most surfaces are coated with a thin layer of moisture, CA starts to harden the moment you apply it.