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## **Technology Advances Lead to Major Performance Benefits in Surface Insensitive and Rubber Toughened Cyanoacrylate Technology**

### **Abstract**

*Instant adhesives, cyanoacrylates, and super glues have been used in many assembly applications for the past 40 to 50 years. These products are one part, solvent free adhesive, non-flammable, 100% solids that cure rapidly at room temperature. They are available in a wide range of viscosity and cure times to meet many application requirements.*

*Adhesive Systems, Inc. has developed a complete family of high performance cyanoacrylate adhesives. These cyanoacrylates bond to a wide range of similar and dissimilar materials (metals, plastics, rubber and wood) providing exceptional bond strength, with excellent aging and weathering properties.*

### **Background**

*Cyanoacrylate adhesives cure quickly at room temperature. Cyanoacrylates are moisture cure systems. The curing process takes place in a matter of seconds once the parts are assembled. Acidic stabilizers in the cyanoacrylate adhesive are neutralized when the adhesive is forced into a thin film. The adhesive picks up surface moisture on the surface and polymerization takes place. Cyanoacrylate adhesives provide fixture strength in just a few seconds and fully cure in less than 8 hours.*

*Cyanoacrylates are convenient, ready to use adhesives right from the bottle. They can be easily automated, allow for in-line production (no stack offs or heat curing necessary), increased production output, and are cost effective. Cyanoacrylates cure to a dry, clear bond line, and bond to metal, plastic, rubber, wood, leather, etc. of all types. They are extremely versatile products capable of bonding to a wide range of materials.*

### **Technology Advances**

*Adhesive Systems has two new developments in cyanoacrylate technology, surface insensitive*

*cyanoacrylates and rubber toughened cyanoacrylates.*

*Surface Insensitive cyanoacrylates are used in applications that require exceptionally fast fixture times and cure speeds. They are ideal for surfaces that have low moisture and/or surface that may be acidic. These cyanoacrylates perform well on parts that contain plasticizers. The SI Series is designed for the assembly of difficult to bond materials, providing superior bond strengths, improving the reliability and dependability in the finished assembly.*

*Rubber Toughened cyanoacrylates are used in applications that require improved impact resistance, thermal shock loading, temperature cycling, and added flexibility in the bond area. The TS Series is designed to provide added flexibility in the bond area. It offers outstanding performance on bonding similar and dissimilar surfaces. It is ideally suited for applications that are exposed to high stress, impact, and vibration. The TS Series of cyanoacrylates compensates for the differences in the coefficients of thermal expansion between dissimilar surfaces during thermal shock loading and/or temperature cycling. These cyanoacrylates offer good resistance to applications that are exposed to high temperatures and high humidity conditions.*

## **Benefits/Results**

*The benefits and results to using the SI Series (Surface Insensitive Cyanoacrylate) and the TS Series (Rubber Toughened Cyanoacrylate) are many. Superior bond strengths, solvent free, non-flammable, fast curing, durable bonds, improved impact resistance, the ability to bond to many similar and dissimilar surfaces, increase production outputs, improved finished product quality, good resistance to high temperature and high humidity environments, available in many cure times and viscosities, lowers production cost, allows for in-line production, room, easily automated, meets Military Specifications, no waste, no mixing, no mixers, improved finished product quality and reliability, cost effective, replaces mechanical fastening devices, etc. The SI and TS Series are cost effective, reduce waste, allow for faster production, and result in a stronger, dependable, and more reliable assembly.*

## **Engineering Excellence**

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