



Smartphones have created their own industry ecosystem. Image Credit: Unsplash user Gilles Lambert

Revolutionary products create their own ecosystems. Take the automobile for example. Cars have changed the face of the world. Their usage created a need for paved roads, highways, driveways, and parking lots. As a result of their ubiquity, communities changed their layouts to make car ownership and transportation easier. It doesn't stop there, though—the ecosystem the automobile created has large niches for secondary industries dependent on the car. Automotive repair shops, for instance, wouldn't exist with automobiles. Neither would dealerships or, perhaps most profoundly, the innumerable factories that create automotive parts to be assembled by car manufacturers. After all, it takes about 30,000 parts ¹ to build a car, and every one of those parts needs to come from somewhere, as does all the glue to hold it together. Of course, all the raw or processed materials needed to make all those automotive parts need to come from somewhere as well. Without the car, vast industries wouldn't exist. Oh, did I mention that cars require gasoline and oil to run?

Of course, cars are old news at this point. If they don't fly, it's hard to get excited. What is new, and what is cool, is the smartphone. Like the automobile, the smartphone has changed the world, creating infrastructure and restructuring communities. Also like the automobile, the smartphone has created a huge ecosystem for secondary industries to thrive in. It doesn't take 30,000 parts to make a smartphone, but the industry still requires huge amounts of precisely engineered components. For glue manufacturers, smartphones present a huge opportunity.



Smartphone glue must be absolutely clear to keep the display clean. Image Credit: Unsplash user Jordan McQueen

Meeting the Stringent Requirements of Smartphone Companies

Naturally, given the exacting requirements of smartphone manufacturing, only the top companies—those that are able to meet stringent manufacturer specifications on time and on budget—are able to secure supply contracts with Apple, Samsung, and other smartphone manufacturers. Supply companies competing not only with each other but also with manufacturers of smartphones themselves, including Foxconn and other high-end manufacturers. But with these challenges comes the potential for great reward. To land a contract supplying a smartphone manufacturer is lucrative, to say the least. As a result, glue manufacturers are vying for the opportunity to play the big new game of the century.

The glue that holds smartphone display screens to their frames must fulfill several requirements. It must be strong, controllable, durable, and water-resistant. On top of all that, it must be [absolutely colorless and transparent](#). Smartphone displays are meant to be visible, after all. Any color or haze whatsoever in the glue would ruin the effect. As such, glue manufacturers supplying smartphone makers must implement strict and effective quality assurance processes to make sure their glue stays clean. The stakes are high—if a company ships too many batches of glue that doesn't meet the standards, they stand a chance of losing their contract to a competitor.



The ubiquity of smartphones means lucrative contracts for their parts suppliers. Image Credit: Unsplash user Samuel Zeller

Spectrophotometers Determine Glue Quality

The margin for error in the manufacture of smartphone glue is razor thin. For this reason, it's essential to turn to instrumental color and haze quality control over human observation. Human observers simply do not have the visual acuity and specificity to reliably detect the small deviations from transparency that pass or fail a batch of glue. Without instrumental analysis, it is unlikely that any glue manufacturer will be able to produce glue to meet the requirements of smartphone manufacturers.

[The best way to ensure](#) that smartphone glue stays colorless and free of haze is to test each batch with a transmission spectrophotometer and haze measurement instrument. Transmission spectrophotometers detect the color—or absence of color—[of transparent liquids](#) and solids by measuring a burst of light sent through that object. They can determine whether a sample of glue meets transparency standards within a matter of seconds. Haze measurement instruments operate in a similar way, using a controlled burst of light to detect the presence of any haze or contamination in transparent substances. While these processes have traditionally required the use of separate instruments or multiple measurements, [HunterLab's Vista](#) is capable of capturing both haze and color data in a single measurement, significantly improving efficiency.

The HunterLab Difference

With over six decades of experience in color quality control, HunterLab has a long track record of successful color measurement applications. Our products are found in the laboratories of the top chemical companies in the world and are used to guarantee that the [chemical products manufacturers](#) rely on are always up to grade. Having worked closely with high-end chemical

manufacturers, we've been able to design our instruments to meet the specific needs of the industry. [Contact us today](#) to find the spectrophotometer that ideal for your operation.

1. "How Many Parts is Each Car Made Of?",

2017, <http://www.toyota.co.jp/en/kids/faq/d/01/04/>