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Advent of RoHS Spawns New Applications for Packaging Technology

AS SEEN IN MANUFACTURER'S MART
Submitted by Elaine Spitz, Liberty Packaging.

A launching point for the electronic industry was the invention of the transistor by Bell Laboratories in 1948. It helped start a revolution: the ability to control and move electrons rapidly through smaller components changed how society would operate.

Subsequent high profile inventions, such as the integrated circuit from Texas Instruments in 1958, also added to the electronics industry's fast progress. Along the way, other challenges and hurdles needed to be cleared in order for the electronics products' reliability, speed, and miniaturizations were to be achieved. One such hurdle was finding the right metal alloy solder and a coatings alloy so that all these components and circuit cards could be successfully joined together and protected from corrosion.

For soldering, and with certain coatings, the tin/lead alloy had been used during the 20th century because it created strong bonds with acceptable melt temperatures, conducted electricity, proved to be durable, reliable, and impervious to corrosive attacks. But with the presence of lead, the disposal of these electronic parts is not ideal for protecting earth's environment.
With those concerns, the European Union Waste Electrical and Electronic Equipment Directive (WEEE) instituted the Restriction of Hazardous Substances (RoHS) legislation effective July 1, 2006. RoHS banned the use of six substances, with lead being the most relevant to the electronics field. Military, transportation, sensors, and large machine tools have received exemptions from RoHS, but the rest of the electronics companies must now comply if they wish to do business in Europe. Other countries and states are embracing RoHS or similar legislation.

Lead-free solders and coatings have been developed and used, but not with the historical reliability of the tin/lead alloy. All lead-free alloys have some sort of a disadvantage when compared to the old reliable mix. For example, some have higher melt temperatures, which can cause problems in the application process. Some are just not as strong in bonding; some do not cover as well; most are more susceptible to corrosion.

Tin, by itself, has a problem called "whisker growth," where the metal actually grows metal whiskers that can cross over circuits and cause shorts. Industry scientists have determined that tin whiskers are caused by metal grain boundary stresses. Bell Labs determined that those metal stresses are caused by a reaction to unstable atmospheric gases prevalent in the air.

In the past, packaging has solved many of society's problems, such as protection for our foods and medicines. Perhaps electronics is another area where the proper packaging can make the difference, so that they operate as designed and will have the intended lifespan. Defects, and especially field defects, can damage a company's reputation, increase product returns, increase field services, decrease bottom line earnings, and damage stock ratings. In today's tumultuous business environment, companies need new advantages. Developed by the aforementioned Bell Labs, Intercept Technology™ protective packaging is one of those advantages.

Additional information about Intercept Technology™ and its applications, from electronics manufacturing to automotive, aerospace, medical and general metal corrosion protection can be found at www.libertypackaging.com.

For more information about Liberty Packaging Co. Inc. and Intercept Technology, please call 781-849-3355, or e-mail to: info@libertypackaging.com

ABOUT LIBERTY PACKAGING COMPANY, INC.
Liberty Packaging Company, Inc. is a woman-owned small business based in Braintree, MA. Since its inception in February, 1996, the primary business of Liberty Packaging has been reselling specialized packaging materials. Liberty Packaging has expanded its business to take advantage of a crucial and growing need for advanced product protection in both the commercial and governmental marketplaces. It plans to meet these needs by offering Intercept Technology™ as its principle product line. Intercept Technology, which was created by Lucent Technologies' Bell Labs, utilizes a patented technology that chemically bonds semi-conductor materials into the polymer matrix, creating a whole new class of semi-conducting plastic materials. Liberty Packaging has exclusivity in marketing Intercept Technology throughout New England, as well as to military markets around the United States.