Heat-Sensing Plastic

Visually monitor changes in product temperature, odor or integrity.

Existing Use: Temperature indicator in generic baby spoons, bottle and straws.

Existing Use: Used on Hungry Jack® Syrup labels as heat indicator. Also used on Ziplock® microwavable storage containers.

Existing Use: Used as warranty-voids on Frito-Lay® snacks. Also used in Duracell® and Energizer™ battery-testing labels.

DETAILS

It is normally impossible to know the temperature of an object without touching it; thermochromic materials are fascinating because they make visible what is normally invisible. The colorful electrical plugs and wiring in the picture above make clever use of thermochromic technology — excessive, possibly dangerous heat is marked by a change of color in the plug casing and cable jacket. The process is reversible, so the color reverts to the original hue once the equipment cools down. In addition to heat, the technology can also detect such other signals of defective wiring as a foul odor or deformation.

Color-changing electrical equipment is useful in every industry where heavy use of plug and cord sets creates the potential for a significant fire hazard, but thermochromic materials have many other applications. Existing uses include battery-testing labels, heat sensing for microwavable foods, and temperature sensors for chilled beverages. Imagine a frying pan that changes color when it's too hot for the nonstick lining's safety; consider an irreversible color change to notify manufacturers of warranty voids.

See the database (http://technology.inventables.com) for more details.