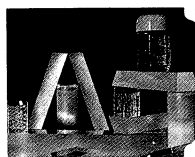


CONSUMER/HOME/RECREATION  
Space-Spurred Metallized Materials

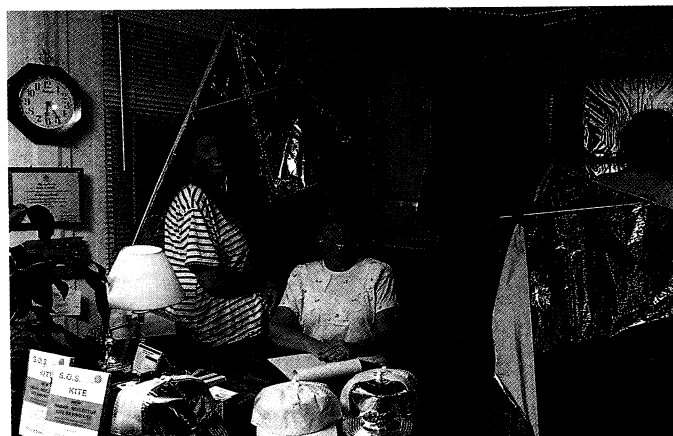


**M**etallization is the art of coating a material with a fine mist of vaporized metal to create a foil-like effect. It's not a space age invention; in fact, the concept is a century old.

However, metallization is a prime example of how use of an existing product or process to meet a space need sometimes triggers a chain reaction: the space requirement serves to create a market, the existence of a market inspires further development, which expands the range of applications, and eventually a once commercially obscure product becomes a booming commodity. In the case of metallization, the space need proved to be the catalyst that transformed a small scale manufacturing operation producing decorative-use metallized plastics into a flourishing industry marketing many different types of materials for scores of applications.

It started in the early days of the space program when NASA was experimenting with large balloon-satellites as orbital relay stations for reflecting communications signals. NASA needed a special material for the balloon skin—something highly reflective for "bouncing" signals, something exceptionally thin and lightweight so it could be folded into a beachball-size canister for launch from Earth. The need was filled by development of a new type of plastic film coated with a superfine mist of vacuum-vaporized aluminum.

NASA subsequently found a broader use for the material thus developed: as a reflective insulator for protecting astronauts from solar radiation and sensitive spacecraft instruments from extremes of temperature. Initial success in that application brought an ever-expanding role for metallized materials, used as insulating "thermal barriers" in virtually every U.S. spacecraft. The impetus thus provided gave manufacturers a market, spurred R&D toward improved vacuum metallizing techniques and led to an extensive line of commercial products, from insulated outdoor garments to packaging for foods, from wall coverings to window shades, from life rafts



*In the top photo, fishing boat captain Kurt Barlow of Islamorda in the Florida Keys is deploying an S.O.S. Signal Kite, a highly reflective distress signal that can be elevated to 200 feet for best visibility. Barlow is wearing a reflective cap for protection from the Sun. Both products are made of a spinoff TXG material by Solar Reflections, Inc., a Florida family business. In the lower photo, displaying their kites and hats, are company vice president Kathryn Holmes (seated); her husband David G. Holmes, president and kite designer; and daughters Cathryn Carlson (left) and Jessica Beerli.*

## *New uses for metallized plastics highlight spinoffs for consumer, home and recreational use*

to candy wrappings, reflective blankets to photographic reflectors.

Metallized Products, Inc. (MPI), Winchester, Massachusetts was one of the companies that worked with NASA in development of the original space materials. It has been a productive partnership for MPI; the company continues to supply metallized materials for space use, but it has developed an even broader line of industrial and consumer-oriented metallized film, fabric, paper and foam. MPI markets its own metallized products and supplies materials to other manufacturers.

One of the most widely used MPI products is TXG laminate, once employed by NASA as a reflective canopy for visual and radar detection of the inflatable rafts in which returning Apollo

astronauts awaited pickup by ships or helicopters of the recovery fleet. New uses for this material are still cropping up regularly.

An example is an application similar to the reflective raft canopy: a reflective kite of gold TXG intended to provide a highly conspicuous distress indicator in an emergency. The S.O.S. Signal Kite can be flown as high as 200 feet to enhance radar and visual detectability. It offers a boon to campers, hikers and mountain climbers, who have need for a lightweight, easily portable emergency signaling device, and to boaters as a more convenient substitute for the bulky dish devices employed as signalling systems in an emergency at sea. Made of metallized nylon, the kite spans six feet but weighs only six ounces. It is produced by Solar Reflections, Inc., Fort Lauderdale, Florida; the company also markets a solar reflective hat for protection from the Sun.

Another example is the novel use of TXG by Pro-Tektion<sup>®</sup>, Inc., Nashville, Tennessee, a small business operated by Dan Leach to provide protection for expensive musical equipment—keyboards, guitars, amplifiers, audio and lighting consoles—that have sensitive electronic components subject to damage from the heat of stage lights, dust in auditoriums, or rain at outdoor concerts.

Leach, a professional audio technician, saw the need for safeguarding instruments and designed a "fitted sheet" type of instrument cover. He researched fabrics available for the covers and found only one—TXG—that met requirements for protecting against all of the hazards. MP supplied the material and, in the budding stage of the new business, acceptance of the covers by the sound industry has been excellent. Pro-Tektion reports that "some of the biggest entertainers on tour are implementing the covers on their equipment, as are sound production companies and manufacturers of audio and lighting consoles."

<sup>®</sup> Pro-Tektion is a registered trademark of Pro-Tektion, Inc.



*In the upper photo is Dan Leach of Pro-Tektion, Inc., who formed a small business to provide covers for musical instruments, made of gold reflective TXG, that protect sensitive electronic components from heat, dust or rain. A closeup of a covered bass guitar and amplifier is shown above.*