

fer than any previous aircraft alloys, yet can be fabricated entirely by existing methods. New aircraft structures designed to exploit these lighter, more rigid materials could yield a 20 per cent saving in weight. When the new products are ready, aluminum will be better able to retain its pre-eminent position in the aviation industry, against competition from plastics, ceramics, carbon fibre materials and other composites.

Other uses

The markets for aluminum-lithium materials are not, however, confined to aviation. The advantages may well become relevant to automobiles, trucks, military vehicles, yachts, sports equipment and high-speed rail links:

Innovation of a different kind is creating a new opportunity in the construction field. Aluminum has long been established as a building material in the form of high volume, modular components: window and wall systems, cladding, roofing, siding. Now an entirely different development is taking place in France. Alcan is custom-tailoring aluminum products to meet individual house-owner needs. Using computer aided design services, Alcan provides individual contractors with complete component systems, reflecting their particular needs, as well as technical support and marketing assistance.

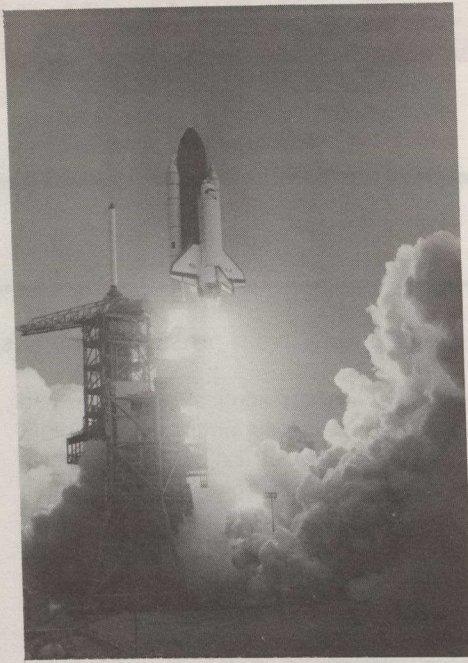
Food packaging

For food preservation and preparation, aluminum foil is rapidly expanding its



Today's jetliners are the product of a generation of refinement in the design of aluminum airframes.

Mia and Klaus



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position as a commercial packaging material thanks to two significant packaging breakthroughs aided in part by technology developed by Alcan and an affiliated company in Japan. The laminated aluminum foil pouch is, in effect, a flexible can which is sterilized by heating the contents after sealing. Because the pouch is slim compared to a can, the sterilization process is short, saving energy. But more importantly, it preserves the natural flavour of the food better.

The pouch also keeps precooked foods fresh for months without refrigeration. The foil pouch is receiving wide acceptance in many European countries and Japan.

Similarly, aluminum's excellent oxygen, light and moisture barrier characteristics make a completely different packaging option possible. Pre-sterilized composite packs receive their food contents in an aseptic environment, avoiding heat sterilization altogether and thus permitting longer shelf life and better flavour for many beverages, including fruit juices and milk.

Space shuttle

Each time a space shuttle lifts off the launch pad it carries with it 243 tonnes of aluminum. While some of this is in the form of the spacecraft's components and equipment, most of it is used quite unexpectedly — as a constituent of the fuel

for the ship's huge booster rockets.

The need to make solid fuel rocket engines burn smoothly requires a very special kind of aluminum powder and Alcan is a major supplier of the 158 tonnes of powder required for each space shuttle flight.

Fire retardant

Another Alcan product developed from aluminum hydrates acts as a fire retardant when it is mixed with a polymer used for the rubber backing for carpets. It slows down the combustion rate by releasing water vapour at low temperatures — in effect a built-in sprinkler system. In other myriad forms, aluminum hydrates are used in paints, resins, plastics and even toothpaste.

One of the devices feeding data into computers in a growing number of offices throughout the world is the rigid memory disc, made of aluminum, produced by Alcan's affiliated company in Japan. One side of a 13 centimetre rigid aluminum



Aluminum packaging has become a household staple.

disc can hold five megabytes of information, the equivalent of a good novel and over nine times more data than that held by the plastic "floppy" discs of the same size now common in home computers. Moreover, the hard disc permits quicker access of information and is more durable.

This new technology is young and moving fast. A super purity aluminum disc with 15 megabytes, three times the present storage capacity, will be introduced this year by Alcan's Japanese affiliate. Aluminum's unique advantages make it an ideal material for producing products to meet the rapidly growing market for high density information storage.