TECHNOLOGY

Film Finish for Buildings

➤ HOUSES of the future will have exterior walls whose upkeep will require no more than a quick washing with water.

Twenty years of study and development by scientists at the Du Pont Company has resulted in an entirely new type of finish for building exteriors, according to Ralph C. Krueger, director of the new building materials sales division. The new product is known as "Tedlar" and is a polyvinyl fluoride (PVF) film which is bonded directly to the building material.

The new film can be bonded to all types of commonly used materials, such as wood, aluminum, galvanized steel, plastics, asbestos and almost any other construction material. Now under production at Du Pont's multi-million-pound-a-year plant at Buffalo, N. Y., it is available in six colors.

Tedlar, a tough and chemically inert film, is similar to porcelain enamel in performance and appearance and costs only slightly more than conventional finishes, Mr. Krueger said. Scientists have tested the film under numerous conditions, including immersion in boiling water, solvent and hot caustic chemicals. It has also been sand-blasted, buried, exposed repeatedly to moisture and chemical fumes, to staining and other tortures and has endured them all. Tests over the past two decades indicate that the new finish will probably have a useful life of at least 25 years.

Tedlar has been used in actual installations all over the country by various manufacturers for test purposes. Cooperators included Alsco, Inc., Aluminum Company of America, Arvin Industries, Inc., Fiber Glass Plastics, Inc., Minnesota Mining and Manufacturing Company, National Steel Corporation, Reynolds Metals Company and U. S. Plywood.

In industrial and commercial building, Tedlar is bonded to the metal as it passes through conventional finishing lines and is then run through other lines for embossing in various designs if desired. The finish thus becomes almost an integral part of the building material.

The building products manufacturer on receiving the coiled finished metal cuts it to his own specifications.

Extremely flexible and elastic, Tedlar film can take high degrees of expansion and contraction caused by temperature variations without cracking. This characteristic is especially important when bonded to cellulosic materials or other materials that have a high degree of expansion.

Tests showed that there was little erosion, chalking or fading over many years. Since the film is bonded to the construction material colors can be easily matched for addition or replacements.

Because the building material is pre-finished, preformed and preprotected, there are fewer delays for the builder because of weather and more protection to the materials during construction.

Easily bonded to roofing felts, Tedlar provides a basis for a new concept in industrial and residential roofing. The membrane adds color, lightness and high heat reflectivity to the other qualities required for roofing materials. Joints in the roofing system are sealed with pressure sensitive tape, thus avoiding nail holes.

Diverse uses have already been found for Tedlar outside the building industry.

• Science News Letter, 83:148 March 9, 1963

CHEMISTRY

New Soluble Gum Stable

➤ A WATER-SOLUBLE gum that stays thick when heated or when in contact with salts may add new products to food, pharmaceutical and cosmetic industries.

This material is noteworthy because most gum solutions thin out under heat or when they come in contact with salt, the U.S. Department of Agriculture reported in Peoria, Ill.

Made from a fermentation process involving the action of a bacterium, *Xanthomonas campestris,* on glucose or corn sugar, the gum was developed by a research team of the northern utilization research laboratory of the USDA Agricultural Research Service.

Distillers' solubles, minerals and water are added to the medium of bacterium and glucose, and the medium is fermented for four days at 82 degrees Fahrenheit to yield an amount of light tan material equal to 65% of the glucose used. This solution is then purified, dried and ground to a soft bulky powder that can be stored for long periods. It dissolves completely in cold water.

Trial quantities of this experimental gum are now being supplied to industry by four companies for further product-development research.

Because of its thickening stability and solubility in water, the new gum may have several uses in industry, the scientists report. The gum could be used in industrial and food products that contain salts, or to thicken foods, pharmaceuticals and such cosmetics as lotions and shampoos.

Oil-well operators who often encounter salt strata and heat might benefit from this gum to control the viscosity of the fluids used for drilling and for flooding away the oil from nearly spent wells.

The gum could also improve liquids used against forest fires by increasing the retention of the fire-fighting liquids on leaves and other surfaces that are hard to wet.

Apparently harmless to plants and animals, the gum will require approval by the Food and Drug Administration before it is used in food, cosmetic and pharmaceutical industries.

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