aging effects without reducing the anti-TB action.

It will be "most difficult," the scientists point out, to determine the benefits of the mixture to the patients. But they are also interested in the results on the tuberculosis germs. The combination treatment might delay the development of resistance by germs to streptomycin.

Science News Letter, April 3, 1948

CHEMISTRY

Improve Synthetic Rubber

This new low-temperature product, after exhaustive tire tests, has proved to be superior to other synthetically produced rubber and better than natural rubber.

➤ SYNTHETIC rubber, produced at much lower temperatures than used in most Buna S production, is better than the natural product, University of Minnesota chemists claim. The low-temperature process was developed in the university laboratories, at Minneapolis, and may result in sweeping changes in the American rubber industry's production methods.

The Minnesota process has been tested and modified in several industrial laboratories and has been tried out on a pilot plant stage, Dr. I. M. Kolthoff of the university staff stated. Exhaustive tire tests have proved that the new product is superior to any synthetic rubber previously produced and considerably better than natural rubber, he said.

Under usual methods of production of Buna S, the rubber formation in the mixture used takes place at a temperature of 122 degrees Fahrenheit, and the process requires from 12 to 14 hours. In the new process it is possible to make rubber within a reasonably short time at temperatures in the vicinity of the freezing point of water. In this process an organic peroxide is used as a catlyst instead of the inorganic salts usually employed.

Key to the superiority of the new rubber lies in the fact that its molecules are more uniform than those in other rubbers, he explained. This uniformity results from effecting the polymerization process at the lower temperatures.

In making Buna S (GRS) rubber, the standard ingredients are 70 parts butadiene, derived from either petroleum or alcohol, and 30 parts styrene, chiefly a coal derivative. When the mixture is put into a container, the top layer is made up of these two ingredients, while below is a layer of water containing a dissolved emulsifier such as soap and usually a dissolved catalyst, an activating chemical agent.

When the mixture is stirred or rotated, polymerization takes place, and the resulting rubber particles remain suspended in the aqueous, or water, layer. With the addition of acid, such as sulfuric acid, the rubber particles coagulate into a pliable mass easily separated.

Science News Letter, April 3, 1948

ENGINEERING

Navy Checks Silt Deposits

➤ A SURVEY of the silt that threatens to fill the bottom of the Grand Canyon of the Colorado under the surface of the great reservoir behind Hoover Dam is now underway. Navy men and a miniature Navy fleet are assisting the Department of the Interior in this job.

The Navy fleet consists of a self-propelled 107 by 21 foot barge and smaller boats, all brought overland from the ocean. The men are divers but are also technical experts in the use of depth-sounding equipment, underwater photography and surveying. The investigations will show the amount of silt already deposited in the 12 years since water was impounded. Anti-silting measures will follow.

The silting of this artificial lake, which when constructed had a capacity of 32,000,000 acre-feet of water, was foreseen when the dam was built. It was known that the turbulent Colorado would deposit its load of fine earth and sand when it reached the quiet waters in the reservoir. Reliable estimates of the rapidity with which the lake's bottom would rise could be made then. The data to be obtained now will assist engineers in designing the best silt-control methods suitable for use in this particular application, and much information for applying elsewhere.

The Hoover Dam is a combination flood-control, irrigation, hydroelectric power, and domestic water construction. Before its construction the "untamable" Colorado, as it was called, destroyed annually farmlands, homes, bridges and highways from near the Nevada boundary to the Gulf of California. Electric plants at the dam have a capacity of over 1,000,000 kilowatts. No water for irrigation and domestic uses is taken from Lake Mead, the Hoover Dam reservoir, but it is taken at lower points. These lower dams on the river, now safe from destruction by the flood-controlling Hoover Dam, supply water for giant irrigation projects in Arizona and California, and domestic water for the Los Angeles area.

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