

Built at a cost of \$51,000,000, construction of such a plant in peacetime would have taken three years. Under pressure of war needs it was completed in about half that time. This was accomplished by engineers and key men working seven days a week, and all workmen putting in long hours of overtime.

To transport the vast quantities of materials going into the project required 8,900 freight cars, and to move these materials on the property and to put them into position, approximately 40 tractors, 40 cranes and 120 trucks were in constant use.

### BUNA-S

On September 29, 1943, Polymer began commercial production of buna-s rubber, using Canadian-made styrene and butadiene imported from the United States. The styrene unit was rushed to completion, producing commercially on July 14, 1943. The butadiene unit came into operation several months later. In the meantime surplus styrene shipped to the United States in exchange for butadiene enabled Canadian production of buna-s to go forward at a time when rubber was urgently needed. This exchange of basic ingredients was made possible by a policy formulated early in 1942 by the two countries, allowing high priorities on essential materials needed by the two countries.

Buna-s is made up of a combination of butadiene and styrene. These chemicals can be extracted from any hydro-carbon. Canada had the choice of making them from grain alcohol or from petroleum. Both processes were tried during the initial stages of synthetic rubber production, but the present program hinges on the use of petroleum, from which buna-s can be produced under present conditions at less than half the cost of using alcohol.

### BUTYL

Another important reason for choosing petroleum as a base for production of butadiene is that butyl rubber is obtained as a by-product of this process. In the manufacture of butadiene the bases are butylenes in the original "cut" from the refinery. There are two types of butylenes, normal butylenes and isobutylenes. Butadiene is made from purified normal butylene after the isobutylene has been extracted. Butyl rubber is made from the isobutylene in a separate unit.

Butyl rubber is used largely in the manufacture of inner tubes of automobiles where it has been found the best substitute for crude rubber. It is also used in gas masks and other essential equipment of that nature.

Extensively used in the manufacture of tire casings, buna-s is a better type of rubber than butyl for this purpose. It possesses superior wearing qualities, stronger resistance to abrasion and blends well with crude rubber, while butyl does not blend. Development of its use in footwear, insulated wire and cables, and tire repairs has reached an advanced stage and substitutions are being made on an increasing scale.