

# REFERENCE PAPERS

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## Synthetic Rubber in Canada

Singapore  
and the  
Nation's  
Rubber

With the fall of Singapore in mid-February, 1942, Canada had occasion for the first time to be concerned with its supply of rubber. Fairly large stocks of natural rubber were then on hand and even larger stocks on order, including 21,000 tons in Singapore and Penang, practically all of which eventually arrived in Canada. It was, however, immediately recognized that Canada, with a normal peacetime consumption of between 30,000 and 35,000 tons of crude rubber a year, would need to give immediate attention to the problem of replacing in some manner those sources lost to the enemy.

Solving the  
Problem

In co-operation with the United States, which found itself in a like position to that of Canada after the loss of its major world sources of crude rubber supplies, steps were taken to provide a usable and effective substitute for natural rubber. Stocks of rubber, as well as information within the two countries, were pooled and a decision was reached through joint consultation between the best technical experts of both countries that the only satisfactory substitute for natural rubber under existing conditions was a type known as Buna-S synthetic rubber.

The name "Buna-S" derives from the first syllable of butadiene, "Bu," and the first syllable of natrium, the classical name for sodium, "Na," sodium being originally used as a catalyst in the polymerization of butadiene. The letter "S" stands for styrene. Butadiene is a gas at normal temperature, that is, above 23 degrees Fahrenheit. It may be vulcanized with sulphur and rubber accelerators and cured to hard rubber. Its resistance to atmospheric deterioration is slightly higher than that of natural rubber. Tests made to date indicate that a combination of Buna-S rubber with nylon or rayon fabrics will make a tire