

Rubber Crystals Are Produced

Chemistry

Feat Brings Chemists Nearer Goal of Synthetic Rubber

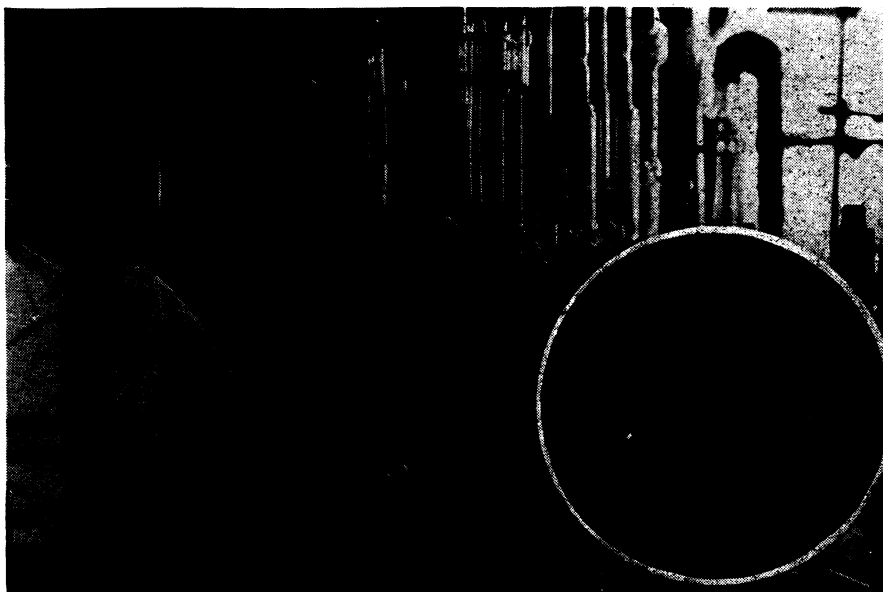
CRYSTALS of rubber, an important step toward the discovery of this familiar material's composition, have been produced in the chemical laboratories of the U. S. Bureau of Standards in Washington.

In achieving this result it was necessary for Dr. W. H. Smith, chemist, to make the purest rubber yet produced. A long process of purification gave a block of rubber as transparent and colorless as window glass. This material, dissolved in ether, and cooled to 80 degrees below zero Centigrade formed minute crystals of rubber, plainly visible under a magnifying glass.

Dr. Smith even succeeded in photographing at this low temperature the fine crystals of rubber and he expects in the near future to publish a scientific report on his work.

Once a small quantity of the crystals is isolated, the chemical composition can be determined by burning them and otherwise analyzing them. This should give the true formula of rubber, which the best estimates indicate may have the molecular composition of some multiple of five carbon atoms and eight hydrogen atoms.

When the structure and composition of rubber is definitely known there will be much greater hope of its synthesis from common sources of carbon and hydrogen, such as



Dr. W. H. Smith, of the U. S. Bureau of Standards; the apparatus with which he made crystals of rubber from rubber dissolved in ether at 80 degrees Centigrade; and the crystals themselves, magnification 70 diameters.

coal. The researches just made at the U. S. Bureau of Standards may therefore in the distant future lead to the freedom of the United States from the dominance of foreign grown rubber, but for the immediate future chemical methods of production are not expected to compete with the natural product.

Rubber was distilled for the first time in history when Dr. Smith took some of the pure, colorless rub-

ber and by placing it in a vacuum at 100 degrees Centigrade temperature succeeded in making it evaporate from one side of a flask and solidify on the other side.

The researches were carried out in the division of chemistry, of which Dr. E. W. Washburn is chief, and they were announced by Dr. G. K. Burgess, director of the Bureau of Standards.

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Sugar Can Prevent Tooth Preservation

Medicine

TOOTH-DECAY cannot be averted by the regular use of antiseptic mouth-washes and tooth-pastes, if you continue to eat too much sugar. This is the conclusion of Dr. Russell W. Bunting, professor of dental histology and pathology at the University of Michigan, based on crucial experiments carried out on many school children.

Dr. Bunting and his associates selected three groups of children. To one group they prescribed an antiseptic mouth-wash twice daily without putting them on a special diet, and to the two other groups they prescribed in addition to the mouth-wash a well-balanced diet, in which sugar was

eliminated except in cooking to make foods palatable. These children had no sugar on cereals, in beverages, very little sweetened preserves and pastry, and little or no candy.

The results of these experiments, which lasted for nine months, were striking. Two-thirds of the children who used the mouth-wash only developed extensive dental caries, whereas in the children kept on a relatively sugar-free diet, not a single vestige of active caries appeared during the year, and cavities already present did not increase in size.

Dr. Bunting's experiments constitute the first successful attempt to eliminate tooth-decay in a large group

of children. They show that little or nothing can be accomplished by pastes or mouth-washes without proper diet.

The importance of diet in the hygiene of teeth is further demonstrated by recent experiments of Mrs. May Mellanby of London. She has shown that puppies developed extremely poor teeth if Vitamin D, the rickets-preventing vitamin, was excluded from the diet. But since typical caries does not occur in dogs, the relation between Vitamin D and this disease can only be determined in man. Experiments dealing with vitamins as possible causes of human tooth-decay are now being carried out by Mrs. Mellanby.

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