



CHEMISTRY

Bounces Like Rubber

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► THE SAME stuff that is used to stick corrugated paper together and to preserve eggs, as a trick can be made to bounce like rubber. No commercial use has been found, however, for this characteristic.

When a good deal of the water has evaporated from the well-known adhesive, sodium silicate, it can be rolled up in a ball and bounced. But instead of stretching when pulled, the material crumbles. These crumbs, not unlike those left after using an art-gum eraser, can be molded together again. If left piled on top of each other, they will soon run together to form a smooth, jelly-like mass.

This is just one of the few amazing forms of sodium silicate, chemically related to common sand and commonly sold for egg preservative under the name of water glass. Composed of alkali and silica, two dry silicates may be selected which, when mixed together, produce a liquid which can actually be poured out of the container. Two liquid silicates, on the other hand, can be combined into a solution which pours more slowly than either of the original ingredients.

Not only do some forms of silicate bounce like rubber, yet fail to stretch, but others stretch like taffy and simply refuse to bounce. Varying the relative amount of alkali and silica in the solution, as well as the proportion of water present, makes it possible to perform many apparently magical tricks with silicates, reports the Philadelphia Quartz Company, interested in developing new uses for this amazing material.

The bouncy silicate may be made from

one of the highly silicious silicates. When water has evaporated so that it composes only about 65 per cent of the solution, little spheres of the material will bounce when dropped. It looks like cloudy glass and breaks just the way glass does, with a shell-like fracture. If left unprotected in the air, the semi-solid silicate dries out rapidly and becomes brittle.

When the soda-silica ratio is one to one-and-a-half, if water forms only about one-third of the solution it can be pulled into long threads. Sticky to the touch, this semi-solid silicate will not bounce. If chilled a little, it becomes quite hard.

With silicates it is possible to mix two solids and get a liquid. When the bouncy silicate is mixed with an equal amount of small crystals of silicate of soda, the material will pour slowly if the crystals were composed of about one-fourth alkali, one-fourth silica and one-half water. It takes vigorous mechanical beating to produce the liquid, but with patience a soupy solution develops. On continued stirring this thins out to a watery fluid.

A solid can be made by adding liquid caustic soda (though not a silicate, it is an allied product) to a liquid silicate containing slightly more silica than the taffy-like solution referred to above. When the caustic soda is at a temperature of 50 degrees Fahrenheit or less, the mixture freezes solid at room temperature.

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Opossum is Missouri's most abundant fur-bearing game but it is hunted principally for sport and for its edible meat.

LIQUID FROM SOLIDS—A watery substance is produced by mixing the bouncy silicate with small crystals of metasilicate, (left). There is no magic involved, nor is the mixture heated or cooled. When vigorously beaten together, the solution pours because by combining silicates of two extremes in composition, a liquid intermediate product is obtained. Photographs by Fremont Davis, Science Service staff photographer.

PUBLIC HEALTH

Expectation of Life In U. S. Has Increased

► THE EXPECTATION of life for industrial workers in the United States actually increased during the war. Rising to 64.4 years in 1944, it was about a half year more than in 1943 and a full year greater than in 1941, our last year of peace, as reflected in the experience of industrial policy-holders of the Metropolitan Life Insurance Company.

Last year the expectation of life for girls of 20, namely 51.35 years, was almost three-quarters of a year greater than in 1941. For insured white males of the same age, just entering their prime, the expectation of life in the war year 1944 was 46.4 years, about one-fifth of a year more than during the last year of peace. Military and civilian deaths from enemy action were not included in the study.

The present situation among colored policyholders, which roughly corresponds to that of whites about two decades ago, shows an even more marked improvement. One and one-third years were added to the life expectation of both males and females during the past three years. Colored males of 20 in 1944 had an expectation of life of 43.42 years, and colored females of the same age an expectation of 45.48 years.

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