

# ALIEN PROPERTY CUSTODIAN

## RUBBER-LIKE MATERIALS FROM DI-HYDROXYALKYL SULPHIDES

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The present application is a continuation in part of my prior copending application Serial No. 94,194, filed August 4, 1936, for "Rubber-Like Materials from Di-Hydroxyalkyl Sulphides."

The present invention relates to the method of manufacturing rubber-like materials under ordinary temperature or heating and with or without solvent, of concentrated sulphuric acid, phosphoric acid, arsenic acid, boric acid anhydride, potassium bisulphate, zinc chloride, tin chloride and other metallic halogenides or ammonium chloride reacted upon the materials which are expressed by  $[(HO)C_nH_{2n}]_2 S_x$  (where  $n$  and  $x$  are positive integers in this case).

The object of the present invention is an economical manufacture of the rubber substitutes

Oil-proof rubber-like materials have hitherto been manufactured mainly by the working of saturated halogenide of hydrocarbon of a rather low molecular weight in water or in alkaline solvent upon the materials generative of sulphur such as alkali sulphides or alkaline earth metal sulphides, but the operation has not only been difficult but economically disadvantageous.

The present invention shows the method of manufacturing elastic rubber-like materials under ordinary temperature or heating and with or without solvent, of concentrated sulphuric acid, phosphoric acid, arsenic acid, boric acid anhydride, potassium bisulphate, zinc chloride, tin

chloride and other metallic halogenides such as mercury chloride, calcium chloride, boron fluoride or ammonium chloride upon the chemicals which are expressed by  $[(HO)C_nH_{2n}]_2 S_x$  (where  $n$  and  $x$  are positive integers in this case). For example, by heating at 150°C for an hour the mixtures of 100 grams of dihydroxyethyl disulphide and 100 grams of concentrated sulphuric acid, about 80 grams of rubber-like material can be obtained, which is of great elasticity and oil-proof property, and also of far less offensive odor than the one manufactured from ethylene chloride.

In practising my invention the integer  $n$  should be chosen between 1 and 6 (and preferably between 2 and 5) while the integer  $x$  should be chosen between 2 and 4. It will be understood that whenever an integer is herein defined as being between two limiting numbers the range of values of such integer is to be taken as including both the limiting numbers.

Although I have shown and described certain embodiments of my invention for the purpose of illustration, it will be understood generally that adaptations, alterations and modifications thereof occurring to one skilled in the art may be made without departing from the scope of my invention as defined in the appended claims.

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