

of calcium hydroxide solution by adding more purified water.

The solution should be stored in well-filled, tightly stoppered containers to deter the absorption of carbon dioxide and should be kept in a cool place to maintain an adequate concentration of dissolved solute. Only the clear supernatant liquid is dispensed. This is best accomplished by the use of a siphon with care not to entrain the residue.

The solution is categorized as an astringent. For this purpose, it is generally employed in combination with other ingredients in dermatologic solutions and lotions to be applied topically. Synonyms: limewater, liquor calcis.

### Coal Tar Topical Solution

Coal tar topical solution is an alcoholic solution containing 20% coal tar and 5% polysorbate 80. It is prepared by mixing the coal tar with two and a half times its weight of washed sand, adding the polysorbate 80 and most of the alcohol, and then macerating the mixture for 7 days in a closed vessel with frequent agitation followed by filtration and adjustment to the proper volume with alcohol. The final content is 81% to 86% ethyl alcohol.

Coal tar is a nearly black viscous liquid having a characteristic naphthalene-like odor and a sharp, burning taste. It is the tar obtained as a by-product during the destructive distillation of bituminous coal. It is slightly soluble in water and partially soluble in most organic solvents, including alcohol. In the preparation of the official solution, the coal tar is mixed with the sand to distribute it mechanically and create a large surface area of tar exposed to the solvent action of the alcohol. During the maceration, or soaking, the alcohol-soluble components of the tar dissolve, leaving the undissolved portion clinging to the sand. Filtration removes the sand and the insoluble tar components from the solution. The container in which the solution was prepared should be rinsed with alcohol, and the washings should be passed through the filter paper in the adjustment of the final volume of the solution.

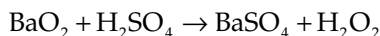
In the extemporaneous compounding of prescriptions and in the therapeutic application of this preparation to the skin, the solution is frequently mixed with aqueous preparations or simply diluted with water. Because coal tar is only slightly soluble in water, it would separate from the solution were it not for the polysorbate 80 in the preparation. This agent, commercially available as Tween 80 (ICI Americas) and as other brand name products, is an oily liquid that is a nonionic surfactant. It is quite effective in dispersing the water-insoluble components of coal tar upon admixture with an aqueous preparation.

Coal tar is a local antieczematic used in external treatment of a wide variety of chronic skin conditions after dilution with about nine volumes of water or in combination with other agents in various lotions, ointments, or solutions. Synonyms: liquor carbonis detergens; liquor picis carbonis; LCD.

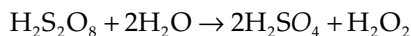
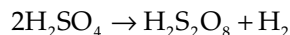
### Hydrogen Peroxide Topical Solution

Hydrogen peroxide topical solution contains 2.5% to 3.5% (w/v) hydrogen peroxide, or  $H_2O_2$ . Suitable preservatives, totaling not more than 0.05%, may be added.

One method of preparation uses the action of either phosphoric or sulfuric acid on barium peroxide:



Another method uses electrolytic oxidation of a cold solution of concentrated sulfuric acid to form persulfuric acid, which when hydrolyzed liberates hydrogen peroxide:



A solution prepared by this method usually contains about 30% hydrogen peroxide and is capable of liberating 100 times its volume of oxygen. A solution of this strength is commonly referred to as 100-volume peroxide. The dilute solution, which contains about 3% hydrogen peroxide and liberates 10 times its volume of oxygen, may be prepared from the concentrated solution.