

IS CASTILE SOAP SYNONYMOUS WITH SAPO U. S. P.?^{*}

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This appears to be a very simple question to answer but upon investigation there seem to be conflicting statements in reference to the subject.

I had, recently, occasion to analyze eight samples of castile soap as sold on the market and the results and methods of analysis have been published in Merck's Report¹, therefore, the analytical discussion will be omitted in this paper. I would state, however, I found only one sample fulfilling the U. S. P. requirements.

I have been interested in having this question settled fairly for both the dealer and manufacturer, as there is likely to be a ruling, for Ohio, in the near future as to the standard for castile soap.

I shall briefly review statements that have been made by writers in journals, also statements found in text books and works of reference, after which I shall give the opinions of a number of soap makers so as to compare the scientific with the practical.

In the January issue of the O. V. D. A. Review, Editor Brittain states: "Castile Soap is a synonym for Sapo or Soap in the nineteenth edition of the U. S. Dispensary. It is the soap of the Pharmacopoeia. There are sold in this market many brands of soap (in long bars or otherwise) purporting to be Castile Soap. A large number of them are mere mongrels, containing animal fats, cocoanut oil, soap bark solution and other ingredients not specified in the U. S. P. formula, which gives the ingredients as Olive Oil and Sodium Hydroxide. Persistence in attempting to meet unfair competition by displaying these brands under signs of Floating Castile Soap, Family Castile Soap, etc., is not at all in keeping with the code of ethics which governs the practice of pharmacy."

Joseph L. Mayer, in a paper² read before the Kings County Pharmaceutical Society, states: "Castile soap is official and the authorities recognize the Pharmacopoeia as a standard; therefore, care should be exercised in both buying and selling an article which is true to name and is an olive oil soap."

The U. S. P., second edition, published at Boston in 1828, refers to Castile Soap as it is used in making Soap Cerate, but no mention is made of a standard for Castile Soap. In the U. S. P., 1860, published in 1863, we find "Sapo. Soap. Soap made with soda and olive oil." The 1880 edition of the U. S. P. contains practically the same statement. In the U. S. P., 1890, we find the same statement with the addition in brackets the words "White Castile Soap." This is the first official intimation that Sapo and Castile Soap were to be considered synonymous. In the U. S. P., 1900, or U. S. P. VIII, we find the same definition as in former editions, but the words "White Castile Soap" are omitted, however, as the same ingredients are used in its preparation we should, according to the U. S. P., at least, from inference, consider Sapo and Castile Soap synonymous.

^{*} Read before the Ohio State Pharmaceutical Association, June 19, 1913.

¹ Merck's Report, April, 1913, issue.

² Published in American Druggist, Vol. 51, page 29.

Roscoe and Schorlemmer³ state under the heading Olive Oil Soap: "This kind of soap, which is usually termed Marseilles Soap or Venetian Soap, was first made from olive oil and soda. Now, however, various other oils are employed."

Bloxam⁴ states: "Castile Soap is made from olive oil, which contains oleine and a solid fat known as margarine. The latter appears to be really composed of palmatine and stearine, so that the Castile Soap is a mixture of oleate, palmitate and stearate of sodium."

Cristiani⁵ states: "White Castile Soap is now made in almost all countries, and generally with artificial sodas, and even in Marseilles these sodas are now being used. Yet in some factories the barilla is still used as the base; this alkali, containing a certain percentage of potash, gives a plastic consistency to the soap which has added to its popularity. This effect is now usually produced by the addition of a drying oil, such as hempseed, sesame, ground-nut, poppy or cotton-seed oil to the amount of 15 to 25 percent of the olive oil. These oils, instead of being a sophistication, may be considered a benefit, as they prevent the soap, which if made with olive oil alone, becomes too hard on drying, from having that undesirable property."

I sent a communication to fourteen manufacturers of soap requesting their opinion on what they considered pure Castile Soap, and received a reply from ten, one of which did not manufacture Castile Soap and stated they were not authorities on that brand of soap. Following are abstracts from the replies of the other nine:

1. We are pleased to answer your inquiry of the 31st ult., and to advise you that by Castile Soap we mean a soap made wholly from olive oil and saponified with caustic soda.

2. Replying to your inquiry, we would say that it is a physical impossibility to make a hard, salable soap from pure olive oil and sodium hydroxide. This composition would not even make it a sufficiently hard soap that it could be cut into bars.

In this connection, we would say that several years ago, a party came to us and wanted to get a pure olive oil soap for a special purpose and although we explained to him that this could not be done, he insisted that we should try it, no matter what the cost would be. We had in mind that possibly by making a milled soap, this could be accomplished. Milled soap, as you probably know, is made by a process whereby the finished soap is cut in chips; then moisture dried out until the soap contains about 10 percent; then by milling and plodding, it is again made into a compact mass. But even with this small amount of moisture, the soap was too soft to be merchantable and we had to use harder fats in connection with olive oil (in this instance tallow) to make it a salable soap, of which fact we informed him.

While in the index of the United States Pharmacopoeia, white castile soap is indicated as being synonymous with *sapo*, yet all castile soaps, whether they are imported or domestic, contain some other hard fats besides olive oil, usually

³ Roscoe & Schorlemmer Chemistry, Vol. III, page 1, page 692.

⁴ Bloxam's Chemistry, page 578.

⁵ Cristiani Technology of Soap, page 274.

one-half olive oil and one half other vegetable oil, such as cocoanut oil or palm kernel oil, and we would not consider them as adulterated.

As to the alkali used, the sodium hydroxide is the only one practicable alkali that could be used, as the potassium hydroxide, the only other alkali that could be used, would produce a liquid or semi-liquid soap.

3. The word "Castile" has been applied more to the method of making soap than the ingredients, in the commercial world in the United States, and this existed many years before our entry into the soap business. A Castile soap is supposed to come from Castile, Spain, which was a soap made with olive oil and soda, but the name "Castile," in U. S. A., has been applied for many years to soaps made from other oils, becoming a very common name on soaps. For instance, there is made the Cocoa Castile, which is made entirely from pure cocoanut oil. It contains no olive oil whatever, but could not be considered an adulterant, as it is a more costly oil than the olive oil used in the manufacture of soaps. There is likely more Cocoa Castile Soap sold today than olive oil. It is customary now when getting out an olive oil Castile to make it "Olive Castile," or "Made from pure olive oil."

Scientifically speaking, a Castile soap should be made from pure olive oil, but its uses in the United States have been long connected with other soaps, and very often very cheap grades of soaps to deceive the public.

4. Replying to your letter of the 31st ult., would say that, in our opinion, a genuine Castile soap is a soap made only from pure olive oil and sodium hydroxide.

5. If a Castile soap is marked Sapo U. S. P., we would then consider it synonymous. Otherwise not. The addition of other oils is not an adulteration, due to the fact that they give better lathering quality, although the soap will not be as soft. Of course, if any soap manufacturer adds such things as starch, mineral oils and so on, we would consider them distinctly adulterations.

Nearly all of the Castile soaps made in this country are not made simply out of olive oil and sodium hydroxide, but are made out of a large proportion of tallow, and the word Castile means to the soap trade, as far as we can understand it, simply that there is olive oil in the soap.

6. The writer has always been under the impression that Castile was simply a name, originating from the Spanish word, Castile, or Castilia, an old province in Spain, where it was first discovered that soap could be made from vegetable oils; olive oil being the only material in that country in ancient times.

It has only been a matter of recent years that cocoanut oil has been generally used in soaps, and taking into comparison the cost price of both materials, we hardly see where the argument can be substantiated that cocoanut oil soap with Castile as part of its name is an adulteration.

7. We do consider Castile soap synonymous with Sapo of the United States Pharmacopoeia only when it is stamped pure olive oil castile. There are a number of soaps made under the castile process on the market and are manufactured from a combination of vegetable oils, and some contain small quantities of tallow. These are also considered pure castile, but not pure olive oil castile. We might mention that there are a large number of soaps on the market called Cocoanut Castile, which are also pure.

8. The Castile soap ordinarily found in the trade is not Castile soap according to the United States Pharmacopoeia. Castile soap, of course, derived its name from the fact that it was made from olive oil in Castalia Province, Spain, and later was specified by U. S. P. as a soap made from pure olive oil and sodium hydroxide. The term "Castile" has now come to apply to almost any soap that has a high percentage of cocoanut or olive oil, and that is intended for toilet purposes.

9. Castile soap was originally undoubtedly made by boiling and graining a soap from olive oil and natural alkali, i. e., a mixture of sodium and potassium hydroxides, containing as impurities salts of iron and manganese to which latter was due the mottled or marbled appearance which was characteristic of Castile soap made in the old days.

Today we would consider as genuine Castile, a boiled and grained soap made from olive oil straight or mixed with peanut oil, or sesame oil, or both, using with the sodium hydroxide enough potassium hydroxide to give the degree of translucency and plasticity which a soap of this class should possess, and if a marbled or mottled article was desired, we would have to use with the present day alkalies the chemicals necessary to produce such effect.

Castile soap should be practically neutral, that is, it should contain but traces of free alkali in the form of either caustic or carbonate of soda, and quite free from other soluble or insoluble inert matter of any kind, the sodium chloride content should be only such as is incidental to the boiling and graining process cited above.

In respect to the United States Pharmacopoeia data under the heading "Sapo" advise that in our opinion such providing for a limit of either 4 percent free carbonate of soda or 3 percent carbonate of soda and 1 percent silica or other foreign matter, we would certainly not as soapmakers consider as pure a product containing such an amount of matter other than soap and water.

In conclusion, I wish to state that after duly weighing all the evidence, it is perfectly proper to decide that Castile Soap is properly a synonym for Sapo U. S. P., and that a ruling to that effect is desirable.

ANALYSING MEDICINES.*

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The detection of any substance by chemical analysis depends, ultimately, upon obtaining it or some of its combinations or derivatives in a condition recognizable by some characteristic property: for example, form, color, smell, taste, melting-point, boiling-point, solubility, miscibility, or alteration in color or other characteristic when brought in contact with chemical reagents. The detection of the presence of a substance depends ultimately on the senses of sight, smell, taste, and touch.

*Abstract of a statement made before the Select Parliamentary Committee on Patent Medicines, by Dr. J. J. Dobbie, F. R. S., Principal of the Government Laboratories. Reprinted from the *Chemist and Druggist*, London.