

1

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**CARBONATED DRINK AND CONCENTRATE FOR PRODUCING SAME**

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This invention relates to a carbonated soft drink and to a concentrate, i. e., an effervescive powder or tablet, for producing the same.

The patent literature is replete with concentrates which have been proposed to supply the demand for palatable soft drinks that are produced by the simple addition of concentrates to cold tap water. The reward for a desirable concentrate is enormously lucrative; yet, to date no successful commercial concentrate has been made.

It is an object of the present invention to provide a concentrate of the character described which is commercially feasible to produce.

It is another object of the invention to provide a concentrate of the character described which when added to water produces a pronounced initial discharge of carbon dioxide and then a continued satisfactory ebullition over at least the period of time customary with pressure-carbonated beverages, for example, a half an hour.

It is another object of the invention to provide a concentrate of the character described which employs ordinary inexpensive chemicals but which nevertheless produces a satisfactory and palatable carbonated soft drink.

It is another object of the invention to provide a concentrate of the character described which will produce a substantial degree of carbonation, such for example as that obtained with pressure-carbonated beverages.

It is another object of the invention to provide a concentrate of the character described wherein the drink produced has a sodary effect and retains such effect over a lengthy period of time, on the order for example of that of a conventional pressure-carbonated beverage.

It is another object of the invention to provide a concentrate of the character described which creates a carbonation yielding fine rather than coarse bubbles, and wherein plentiful further ebullition occurs when the drink is imbibed.

It is another object of the invention to provide a concentrate of the character described which employs chemicals that do not impart an unpleasant flavor or undesirable taste or salinity to the drink produced and which therefore does not require the use of excessive sweetener or flavoring to conceal the flavor and/or taste of the chemicals, it being virtually impossible to conceal salinity.

It is another object of the invention to provide a concentrate of the character described which will not impart a saline or metallic taste to the drink made therefrom even though it provides a carbonation fully equal to that present in pressure-packed beverages.

It is another object of the invention to provide a concentrate of the character described which is composed of ingredients that blend well with the flavors conventionally employed in carbonated soft drinks.

It is another object of the invention to provide a concentrate of the character described which yields a clear and sparkling carbonated soft drink that retains such appearance over an adequate period of time.

2

It is another object of the invention to provide a carbonated soft drink of unusually pleasant taste and which is "dry," i. e. of a low order of sweetness, so that it does not have a cloying taste or leave a cloying after-taste as is the case with many present-day sweet pressure-carbonated soft drinks.

It is another object of the invention to provide a carbonated soft drink including in solution a metallic radical that eliminates the usual lingering sweetness of conventional pressure-carbonated soft drinks.

It is another object of the invention to provide a concentrate of the character described which is simple and inexpensive to manufacture and can be stored over long periods of time without deterioration.

It is another object of the invention to provide a concentrate of the character described which has the taste and refreshing attributes of a pressure-carbonated beverage but which is substantially healthier than the latter because it does not have an acidity low enough to be injurious to the teeth and because it has residual ingredients that are healthful as well as fully palatable.

Other objects of the invention in part will be obvious and in part will be pointed out hereinafter.

The invention accordingly consists in the concentrates, carbonated drinks and series of steps hereinafter described and of which the scope of application will be indicated in the appended claims.

This application is a continuation-in-part of my co-pending application Serial No. 442,919 for Carbonated Soft Drink and Concentrate for Producing Same, filed July 12, 1954.

In preparing concentrates of the character described, among the main problems presented are obtaining a satisfactory initial burst of ebullition, continuing ebullition over a sufficiently long period, and rapid dissolving and/or very finely suspending the concentrate so that the drink will clear promptly. In addition, there should be a soda quality to the drink, so that a tingling and refreshing effect is created by extra ebullition when the drink is imbibed. Also, the drink must remain clear for a reasonable period and the chemicals employed to produce effervescence must not spoil the flavor and/or taste of the drink or cause undesirable physiological results.

According to the invention, the foregoing problems have been solved and a concentrate produced which is adapted to accomplish all the aforementioned objects. In the description of the invention given below, the critical features thereof which render the instant invention successful where the art has for so long failed are set forth.

In carrying out the invention a carbonate factor and an acid factor are employed to provide the basic effervescent couple. In addition, flavoring agents, coloring agents, binders, etc., are used to make up the commercial concentrate.

Pursuant to the invention a carbonate factor including in whole or in part calcium carbonate is employed in conjunction with an acid factor predominantly comprising citric acid. These compounds are utilized because of their capacity when used under the conditions prescribed below to produce a concentrate which will satisfy the requirements as to clearing and ebullition.

Since calcium carbonate is comparatively insoluble in water, particularly in water at the low temperature customary for a soft drink, preferably a highly water-soluble carbonate is added to the carbonate factor to produce an initial burst of ebullition. Preferably, an alkali carbonate such as potassium bicarbonate is employed. The presence of an alkali radical can also increase the solubility and dispersibility of the calcium carbonate. At least 60% of the carbonate factor must be calcium carbonate in