

1

3,038,816

METHOD FOR PRODUCING SPRAYABLE COMPOSITION

Leonard B. Drell and Leon R. Rubin, Chicago, Ill., assignors to Gibraltar Industries, Inc., Chicago, Ill., a corporation of Illinois
 No Drawing. Filed June 12, 1959, Ser. No. 819,834
 2 Claims. (Cl. 106-287)

This invention relates to a method for producing an aerosol spray composition containing lecithin.

In producing aerosol sprays containing lecithin such as those shown in United States patent to Lalone 2,796,363 issued June 18, 1957, it has generally been thought necessary to dissolve the lecithin in an organic solvent before combining it with the propellant system. This is so because pure lecithin is highly viscous and is extremely difficult to work with. The presence of these solvents, however, is undesirable since they leave a residue when the product is sprayed on a surface or have an unwanted odor. This is particularly bad since the aerosol compounds of Lalone are to be sprayed on a cooking surface to be used with foods.

It is therefore, an object of this invention to provide a method for producing an aerosol spray composition containing lecithin which avoids the use of undesirable organic solvents.

It is a further object of this invention to provide a method for preparing compositions which may be dispensed from pressure tight containers to deposit a film of lecithin on cooking utensils and the like, which comprises dissolving the lecithin in monofluorotrchloromethane at temperatures below the boiling point of the solvent, cooling the lecithin solution to a temperature in the range of between about 5 to -10° F. and combining the cooled lecithin solution and a nontoxic odorless propellant in a liquid state to provide a propellant system containing lecithin which is adapted to be sprayed from a pressure tight container.

Other objects and advantages of the invention will become apparent from the following description.

In providing aerosol systems containing lecithin, it has been found possible to obviate the use of a solvent such as hexane for the lecithin before dissolving it in the aerosol system by first dissolving the lecithin alone in a quantity of Freon 11 at room temperatures. Freon 11 (monofluorotrchloromethane) is capable of dissolving up to about 20 lbs. of lecithin per 100 lbs. of Freon 11 at room temperature. Since the Freon 11 is a liquid and exhibits a vapor pressure of only about 2.6 p.s.i. gauge at room temperature, i.e., 70° F., it is possible to prepare the lecithin solution in ordinary noncorroding vessels.

Lecithin is also widely soluble in Freon 11 even at lower temperatures. Thus, it is possible then to cool the lecithin solution to temperatures from about 0 to about -20° F. before combining it with an additional odorless, non-toxic propellant having a substantially higher vapor pressure so that an over-all vapor pressure for the system at 70° F. is provided ranging between 20 to 35 p.s.i. gauge. For example, Freon 12 (difluorodichloromethane) may then be added to the lecithin solution to provide this satisfactory propellant system. It is preferred that the final product contain from about 1-10% lecithin by weight. In order to do this, the Freon 12 is cooled to temperatures below 0° F. such as, for example, from -5 to -10° F. so that it may be added in a liquid state. This solution then of Freon 11, Freon 12 and lecithin is, as cooled, in condition to be put into dispersing containers of various sizes.

2

Example I

In one example of preparing the lecithin aerosol system by the method of this invention, 6.25 lbs. of anhydrous lecithin is added to 93.75 lbs. of "Freon 11" contained in a tank maintained at atmospheric temperature and pressure. The materials are agitated until a homogeneous solution is obtained.

The lecithin solution is then cooled by refrigeration to a temperature of -5° F. and passed to a pressure tank capable of withstanding internal pressures up to 100 lbs. p.s.i. gauge. To the cooled lecithin solution is added 200 lbs. of "Freon 11" and 200 lbs. of "Freon 12" which has been pre-cooled to a temperature between about -5° F. and about -10° F. to form a final solution. This final solution is forced in quantities under pressure into dispersing containers of various sizes.

Example II

Using the same procedure as set out in Example I, 20 lbs. of lecithin is added to 100 lbs. of "Freon 11." Thereafter, the mixture is cooled to -5° F. and 80 lbs. of "Freon 12" cooled to between -5° and -10° F. is added. This mixture is then placed in dispersing cans.

Having described our invention as related to the embodiment set out herein, it is our intention that the invention be not limited by any of the details of description, unless otherwise specified, but rather be construed broadly within its spirit and scope as set out in the accompanying claims.

We claim:

1. The method of producing an aerosol composition containing lecithin which may be dispensed from a pressure tight container, comprising the steps of: dissolving up to 1 part by weight of lecithin in about 5 parts by weight of monofluorotrchloromethane at a temperature below the boiling point thereof, cooling the lecithin solution to a temperature from about 5° F. to -10° F., and combining the cool solution with a sufficient amount of odorless, nontoxic propellant in a liquid state to provide an over-all resulting vapor pressure of the composition at 70° F. of between about 20 to 35 p.s.i. gauge.

2. The method of producing an aerosol composition containing lecithin which may be dispensed from a pressure tight container, comprising the steps of: dissolving up to 1 part by weight of lecithin in about 5 parts by weight of monofluorotrchloromethane at room temperature, cooling the lecithin solution to a temperature from about 5° F. to -10° F., and combining said solution with a sufficient amount of difluorodichloromethane at a temperature between about -5° F. and -10° F. to provide an over-all resulting vapor pressure of the composition at 70° F. of between about 20 to 35 p.s.i. gauge.

References Cited in the file of this patent

UNITED STATES PATENTS

2,796,363	Lalone	June 18, 1957
2,819,971	Gunthardt	Jan. 14, 1958
2,849,323	Young	Aug. 26, 1958
2,902,376	Beacher et al.	Sept. 1, 1959

OTHER REFERENCES

"Freon,"	du Pont Technical Bulletin, B-2,	1957,
	page 6.	
"Freon,"	du Pont Aerosol Report, Fa-22,	1957, pages
	8 and 24.	