CHAPTER 16

BUTYRIN

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§ 1. PHYSICAL PROPERTIES

583. At 19°C, it is very fluid and its density is 0.908 (g/mL). It is nearly always colored yellow but this is not essential since there are butters that yield an almost colorless butyrin. It has an aroma of warm butter. It does not seem to congeal until zero degrees centigrade.

§ 2. CHEMICAL PROPERTIES

584. It has absolutely no effect on colored reagents.

585. Water does not dissolve it.

586. It is completely miscible with boiling alcohol with a density of 0.822[1] (g/mL). A solution of 20 parts of butyrin in 100 parts of boiling alcohol seemed to me to become cloudy on cooling, whereas a solution of 120 parts of butyrin in 100 parts of alcohol remained transparent. In all likelihood, the latter is a solution of alcohol in butyrin[2].

587. On distillation of a very dilute alcoholic solution of butyrin, this substance becomes acid and when it is allowed to react with a slurry of magnesium carbonate, only traces of magnesium butyrate are found in the water after having separated the carbonate from the alcohol that had not boiled off. This proves that the amount of acid that was liberated was very small. After this treatment, the butyrin has no effect on litmus and after incineration, it does not leave a noticeable residue.

588. Butyrin is easily saponified. By treating 100 parts with caustic potash and acidulating the soap with phosphoric acid, an aqueous liquid *A*. and an acid fat *B*. are obtained.

589. On distillation, the aqueous liquid gives: *A*. Aqueous liquid

1. An acid product that when neutralized by baryta water yields 26 parts of anhydrous salt.
2. A solid residue yielding 12.5 parts of glycerin on extraction with alcohol.

B. Acidulated fat

590. The acidulated fat represents 80.5 parts. It is made up of palmitic and oleic acid. When it is heated and allowed to cool, it starts to solidify at 32°C but this is far from complete and at 16°C a significant amount is still fluid.

§ 3. PREPARATION

591. (See Book IV, Chapter 2, section 3.)

§ 4. NOMENCLATURE

592. *Butyrin* is derived from the Latin *butyrum*, "butter". I gave this name to this substance because it contains the elements of the odorific principle of butter.

§ 5. HISTORY

593. I described it in a report presented to the Academy on June 14, 1819.

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[1] This density corresponds to an alcohol content of 90.2 % by weight or 93.5 % by volume.

[2] Making a distinction between a water-in-oil emulsion and an oil-in-water emulsion makes sense but making similar distinctions between solutions of butyrin in alcohol and alcohol in butyrin does not. Perhaps the author considered solutions of organic materials to be like solutions of salt in water: a continuous aqueous phase containing dispersed salt.