

SEPARATION OF SOLID AND LIQUID FATTY ACIDS.

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THE April number of this Journal (289-295) contains a criticism, by Twitchell, of some processes for the separation of solid and liquid fatty acids. Being joint author with Muter of the process referred to on page 290, I wish to make a few observations.

The author states that he carefully carried out Muter's instructions in all important details. I beg to differ from him. We work directly on the fat and not on the fatty acids isolated therefrom. We do not *boil* with ether to dissolve the lead oleate, and after having taken the trouble to expel the ether by means of a current of carbonic acid we do not undo any good this may have done by passing a current of air, but add the Hübl solution directly, as we know the weight of the oleic acid by a previous titration. I feel sure, however, that there is a deal of exaggeration about all this danger of oxidation.

The lead oleate is precipitated as a bulky semi-fused mass which soon solidifies, and if ever so sensitive to oxygen can only be affected very superficially. When dissolving in ether the flask is nearly filled and the little air remaining is practically expelled by ether vapor, so that the few cc. of oxygen left certainly cannot cause a great oxidation. Even on filtering, the air is not likely to act much on a liquid which is always in an active state of evaporation and consequently repels the air. I feel sure that lead stearate and palmitate are insoluble in ether; then when carrying out the separation from the oleate, there soon comes a time when the filtrate no longer colors with ammonium sulphide. The author's suggestion, that it may be more soluble in ether containing lead oleate, is not supported by my own experience. Then Muter and I have stated in the *Analyst*, **15**, 49, that the liquid acid from tallow gives practically the iodine figure of pure oleic acid. For lard acid we found, however, ninety-three to ninety-four per cent., and I am pleased to see Twitchell's confirmation of this figure.

As gold alloys containing too little silver cannot be parted by means of nitric acid, so the separation of lead oleate from lead stearate fails if too little of the former is present. I published, two years ago, a short article in the *Chem. News*, **66**, 259, dealing with this subject, and refer to the same.

ACETIC ACID IN VINEGAR.

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RECENTLY, having occasion to determine the acetic acid in many samples of vinegar, I was surprised to find how vague and unsatisfactory are the directions relating to this simple matter in many text-books and manuals for public analysts.

One of the latter recommends that fifty cc. of vinegar should be used and the titration performed with soda, no particular strength or indicator being mentioned. Another, in general terms, calls attention to the fact that only approximate results can be obtained with soda, its acetate having a feeble alkaline reaction. The indicator, in the presence of which it so reacts, is not stated. Sutton's Volumetric Analysis calls attention to the necessity of substituting phenolphthalein for litmus, the acetates of the alkalis and alkaline earths having a perfectly neutral reaction to the former. He further adds that colored vinegars may be so titrated even when highly diluted.

Beginning with twenty-five cc., which I found at once to be much too large a quantity, and using seminormal acid soda as a convenient strength of alkali, I presently reduced the volume of vinegar to ten cc. and finally to five cc. When this was diluted with fifty cc. of water in a white porcelain dish, and phenolphthalein was used as indicator, the end reaction was satisfactory, except in the case of highly colored vinegars. In these it is not sharp. Nor can litmus paper or litmus solution be satisfactorily used with them. Litmus gives not only a lower reading, but lower by a very variable amount in different vinegars. Sixteen samples tested as above described gave percentages ranging from 2.63 per cent. to 5.65 per cent., with a mean of 4.49. A mixture made up of twenty-five cc. of each, gave 4.44 per cent. The color of these samples was white to dark brown.