be produced in the plant, operations could be adjusted to meet variations in market conditions thereby improving the economics of the individual processes.

Market potential for purified linoleic acid is exceedingly difficult to predict and will be determined to some extent by its selling price. In some applications, such as in plasticizers, substitution of linoleic acid for natural oil may impart improved qualities to a particular product. The use of the acid may possibly be justified under such conditions even though its price may be higher than that of the oil.

For at least one application, an industry source has indicated that linoleic acid at about 40 cents per pound may find a potential market. With a net "cost to make" of 21 cents per pound of 97% linoleic acid, apparently the selling price would be substantially under 40 cents once normal production rates are attained.

Even though linoleic acid must compete in some applications with products now on the market, it would appear that a "cost to make" of 21 cents a pound should create an interest in the product.

REFERENCES

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carried on at room temperature for 10 min. Removal of ether and diazomethane under vacuum increased the stability of the esters which otherwise became colored yellow in a few days, even in the refrigerator under nitrogen. A further precaution to prevent yellowing involved the storage of esters in solution.

Radioassay. Radioactivity was determined with an automatic Packard Tri-Carb Liquid Scintillation Spectrometer. Wheaton 5-Dram Liquid Scintillation sample vials were used. The photomultiplier high voltage was set at Tap 6 and discriminator settings of 10–50 V and 50–100 V employed. Samples were taken up in 15 ml of a solution containing 3 g PPO and 50 mg POPOP/liter of redistilled toluene.

Gas Chromatography. An Aerograph Gas Chromatograph was used. Carrier gas was helium; the column was diethylene glycol succinate on firebrick (DEGS) (10 ft); maintained at 220°C.

Samples were taken for radioactivity determination every 30 sec by insertion into the exit of a tapered glass tube, stuffed with cotton, and soaked with methanol. The used tubes were placed in scintillation vials until completion of the run. The cotton was removed by insertion of a sturdy wire through the narrow end of the tube. The cotton and tube were replaced in the scintillation vial until the methanol evaporated from the cotton as methanol would cause quenching. When free from methanol, 15 ml of scintillation solution was added and the glass tube and cotton soaked for several hours. After removal of the glass tube and the cotton by hooking with a wire, radioactivity was determined by scintillation counting. The efficiency of this technique of sample collection was tested with a pure sample of tritium labeled methyl oleate. The sum of all fractions amounted to 233,300 counts/min, while the control sample gave 220,290 counts/min. The deviation above 100% recovery was within the experimental error of counting.

Preparation of Stearolic Acid. Stearolic acid was prepared by a modification of the alcohol-potassium hydroxide method of dehydrodehalogenation that has been reported in various forms by numerous authors (7,8,9,10,11,12). Yields were comparable with those obtained with alcohol solvents (30–40%), but not as high as that reported by Khan, Deatherage, and Brown (13) who dehydrodehalogenated with soda-mide in liquid ammonia. The method reported here, however, was rapid, and the stearolic acid was recovered in a relatively pure state.

Two hundred ninety-six and five tenths g of methyl oleate was slowly brominated with 160 g of bromine while chilled in an ice-water bath. The excess bromine was removed and the reaction mixture transferred to a beaker. Separately, in a large beaker, 336 g potassium hydroxide was dissolved in 216 ml ethylene glycol by heating on a hot plate, while bubbling nitrogen slowly through the solution (to prevent darkening), complete solution occurred overnight. The warm solution of ethylene glycol-potassium hydroxide was slowly poured into the beaker containing dibromostearic acid. An instantaneous reaction occurred, causing foaming. The mixture was covered with a watch glass and heated to a solution temperature of 140–170°C for five hr. The mixture was cooled in ice, acidified with concentrated hydrochloric acid to phenolphthalein, and to methyl orange. The ste-