A good sample for nitroglycerol purposes tested as follows: ash, trace; carbonaceous residue, 0.012 per cent.; sodium chloride, 0.002 per cent.; total acid equivalent, 0.05347; permanent specific gravity, 1.2653; specific gravity, 1.2634; higher fatty acids, none; reaction, neutral.

I am indebted to Dr. Joseph Van Ruymbeke, the inventor of the Van Ruymbeke process of recovering glycerol from soap-lyes, for the first idea of the total acid equivalent and permanent specific gravity determinations.

THE COLUMBIAN UNIVERSITY,
December 17, 1894.

ESTIMATION OF TELLURIUM IN COPPER BULLION.[1]

BY CABELL WHITEHEAD.

Received January 2, 1895.

DISSOLVE from twenty-five to fifty grams of the bullion in nitric acid 32° B. and boil off the excess of acid. Add to this solution an amount of a ferric nitrate solution equivalent to 250 mgms. of metallic iron. Precipitate, while hot, with an excess of ammonia, filter, and wash with dilute ammonia until the copper salts are entirely removed, redissolving and reprecipitating if necessary. The residue on the filter contains the tellurium and selenium present in the bullion as ferric tellurites and selenites. This is dissolved in hydrochloric acid, and excess of tartaric acid added, the solution made alkaline with potassium hydroxide, and hydrogen sulphide passed through it, when the tellurium and selenium pass into solution as soluble sulphides. Filter; decompose the alkaline sulphides in the filtrate with dilute hydrochloric acid; allow the liquid to stand in a warm place until the hydrogen sulphide has been removed. Filter again; dissolve the tellurium and selenium sulphides in aqua regia; evaporate the solution to dryness, take up with hydrochloric acid and precipitate the tellurium and selenium from the solution by passing sulphur dioxide through to saturation. Cover the beaker and allow the solution to stand for twelve hours in a warm place, when the precipitate, which consists of tellurium and selenium, is filtered on a tared filter, dried at 100°, and weighed together.

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[1] Read at the Boston Meeting, December 27, 1894.

The selenium is separated from the tellurium by boiling the precipitate in concentrated potassium cyanide solution, filtering, and adding hydrochloric acid, when the selenium comes down as a brick-red precipitate, which is weighed as before, after drying at 100°.

The tellurium is determined by difference or the small amount dissolved by the cyanide solution may be precipitated, after removal of selenium, by saturating with sulphur dioxide, collecting the precipitate with the original residue. and weighing after drying at 100°.

THE COLUMBIAN UNIVERSITY,
WASHINGTON, D. C.

THE USE OF SULPHUROUS ACID ($HNaSO_3$) IN MANUFACTURE OF GLUCOSE SYRUP AND GRAPE-SUGAR.

BY HORACE E. HORTON.

Received January 18, 1895.

UP to the year 1893 a large quantity of the glucose syrup and grape-sugar offered in home markets was manufactured by a carefully worked-out process, in which sulphurous acid had but little if any place.

While a fine grade of glucose can be manufactured without the use of sulphurous acid, its irrational use has taken full possession of some manufacturers.

That sulphurous acid has a legitimate place in a rational process of manufacture few who have studied the subject will deny, but a great deal of careful work is yet necessary to define the use of this reagent.

I have studied the action of sodium bisulphite on glucose syrup and grape-sugar in several directions, and with interesting results. The bisulphite used was manufactured by Gelian and Co., of New York, who have an excellent article of 38°–40° Bé. density.

Preserving Color of Glucose Syrups.—Numerous experiments have convinced me that sulphurous acid is of great value in preserving the color of glucose syrups. I will present here one