

unknown. Its properties are as follows: Specific gravity, 0.9165 at 15° C.; acid number, 1.52; saponification number, 196.55; iodine number, 86.7; butyro-refractometer reading, 62° at 25° C.

*Grape Seed Oil.*—Grape seed oil has been produced for some time as a by-product of the wine industry in some parts of Europe, but until recently no attempt was made in this country to utilize the seeds. Several years ago the production of this oil was begun in connection with the seeded raisin industry and the output of oil was reported last year to have reached over 300,000 pounds. The sample submitted was a bland, pleasant nutty flavored oil of bright sparkling appearance and showing the following characteristics: Specific gravity, 0.9215 at 15° C.; acid number, 100.10; butyro-refractometer reading, 71° at 25° C.

The foregoing data are submitted as a contribution to the literature of these respective oils.

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## KEEPING QUALITIES OF SOME U. S. P. VOLUMETRIC SOLUTIONS (CONCLUSIONS)

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At the Los Angeles meeting I commenced the presentation of a series of reports on the keeping quality of certain U. S. P. Volumetric solutions. These solutions have been under observation, in some instances for more than four years, and I wish to present a summary of the work done. In some instances the results are such as would warrant definite conclusions.

### TENTH NORMAL SODIUM THIOSULPHATE V. S.

Various schemes for the preparation and preservation of this solution were tried. The solution was made from common crystals and C. P. granular sodium thiosulphate using common hydrant water and distilled water. The solutions were made alkaline by the addition of varying quantities of sodium hydroxide. "Preservatives" were added in the form of thymol, resorcinol, formaldehyde, etc. The solutions were preserved in transparent bottles, amber bottles, cork stoppered or glass stoppered bottles, protected from the light, and exposed to the light. In every instance deterioration was shown in a comparatively short time.

Summary—Solutions made from C. P. thiosulphate and distilled water kept as well as any. Protection from light and the addition of alkali seem to retard the decomposition slightly but do not prevent it. So far as the result of these experiments go it is not safe to use a tenth normal sodium thiosulphate V. S. that is more than a month old, no matter how prepared and stored, without re-standardization.

### TENTH NORMAL POTASSIUM PERMANGANATE V. S.

Solution No. 1—This solution was standardized on April 5, 1908, and had a

factor of 1.0433. August 3, 1911, three years and four months later the factor is the same.

Summary—Permanganate solutions keep much better than is popularly believed. If time is allowed for the initial decomposition, if any, to take place, the solution keeps at least three years.

#### TENTH NORMAL BROMINE V. S.

Solution No. 5—This solution was standardized May 20, 1908, and had a factor of 1.0144. August 3, 1911, three years and two months later the factor is the same.

Summary—The work on this solution, as well as on several others, leads to the conclusion that tenth normal bromine V. S. of the U. S. P. will retain its strength for at least three years under ordinary conditions.

#### TENTH NORMAL IODINE V. S.

Solution No. 2—This solution was standardized May 8, 1908 and had a factor of 0.9541. There was loss in strength during the first few months but for fourteen months it remained of nearly constant strength. August 3, 1911, the factor is 0.9200.

Summary—Tenth Normal Iodine V. S., U. S. P., deteriorates rapidly when freshly made and even after some time it gradually loses strength. It should be standardized frequently for the first few weeks and if kept longer than a month restandardized every month or so.

#### TENTH NORMAL POTASSIUM SULPHOCYANIDE V. S.

Solution No. 1—This solution was standardized October 20, 1906, and had a factor of 1.0636. August 3, 1911, four years and ten months later the factor is the same.

Summary—The work on this solution as well on several others lead to the conclusion that this solution keeps indefinitely.

#### TENTH NORMAL SILVER NITRATE V. S.

Solution No. . .—This solution was standardized December 16, 1909, and had a factor of 1.0823. August 3, 1911, two years and eight months later, the factor is the same.

Summary—This solution retains its titer much better than is popularly believed, and if prepared and preserved in the manner described will keep more than two years.