HEAT OF VAPORIZATION OF HYDROGEN FLUORIDE

| Duration of run, min. | Energy input volts | amp. | Weight HF vaporized, g. | Correction,[a] g. HF | Heat of vaporization, cal. |
|---|---|---|---|---|---|
| 76 | 2.08 | 0.145 | 3.4850 | 0.4630 | 109 |
| 62 | 2.09 | .145 | 4.4331 | 1.2200 | 84 |
| 37 | 2.53 | .175 | 2.4444 | 0.3901 | 114 |
| 41 | 2.62 | .185 | 4.2252 | .6540 | 80 |
| 20 | 2.46 | .175 | 1.7732 | .3188 | 85 |
| 17 | 2.83 | .200 | 1.4280 | .2713 | 119 |
| The above runs represent preliminary work | | | | | |
| Barometric pressure 750 mm. | | | | Average | 98 |
| 30 | 2.88 | 0.200 | 2.4759 | 0.0762 | 103 |
| 30 | 2.52 | .175 | 2.1602 | .1875 | 96 |
| 30 | 2.15 | .150 | 1.5765 | .1754 | 99 |
| 30 | 1.806 | .125 | 1.2395 | .1952 | 93 |
| 30 | 1.57 | .110 | 0.9883 | .1952 | 94 |
| 29.25 | 2.14 | .150 | 1.4279 | .0815 | 100 |
| Barometric pressure 748 mm. | | | | Average | 97.5 |

Calculated heat of vaporization per gram = 6025/63.36 = 95.

[a] This correction factor is obtained experimentally. It is the amount of hydrogen fluoride vaporized by the heat leak for the same time as the duration of the run.

## Summary

The heat of vaporization of hydrogen fluoride has been determined experimentally and found to agree with the value calculated from the vapor pressure and vapor density measurements.

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# Notes

## A Method for the Preparation of Telluric Acid

BY L. I. GILBERTSON

Gutbier, and Gutbier and Wagenknecht,[1] prepared tellurates by the oxidation of tellurium or tellurous oxide with 15% hydrogen peroxide in solution of strong alkalies. Schluck[2] oxidized tellurium with 60% hydrogen peroxide to form telluric acid.

The oxidation of tellurium and tellurous oxide is accomplished readily in sulfuric acid solution by 30% hydrogen peroxide. Best oxidation is obtained when a mixture of two volumes of 30% hydrogen peroxide with one volume of concentrated sulfuric acid (the mixture being prepared at 0°) is refluxed with the sample. The active oxidizing agent is permonosulfuric acid.[3]

(1) Gutbier, *Z. anorg. Chem.*, **42**, 174 (1904); Gutbier and Wagenknecht, *ibid.*, **40**, 260 (1904).
(2) Schluck, *Monatsh.*, **37**, 489 (1916).
(3) *Northwest Science*, **5**, No. 3, 108–109 (1932).

To prepare telluric acid, tellurium (or tellurous oxide) was refluxed with the solution of hydrogen peroxide and sulfuric acid until dissolved and active effervescence of oxygen had ceased. The solution was filtered on asbestos and evaporated to incipient crystallization. Concentrated nitric acid was added to precipitate ortho-telluric acid, which was filtered off on asbestos. After heating to decompose the remaining nitric acid, the residue was dissolved in hot water, filtered and recrystallized. Telluric acid prepared in this manner showed no qualitative indication of sulfates or nitrates.

*Anal.* Calcd. for oxygen to oxidize HCl, 6.97. Found, 6.95. Calcd.: tellurium, 55.54. Found, 55.56.

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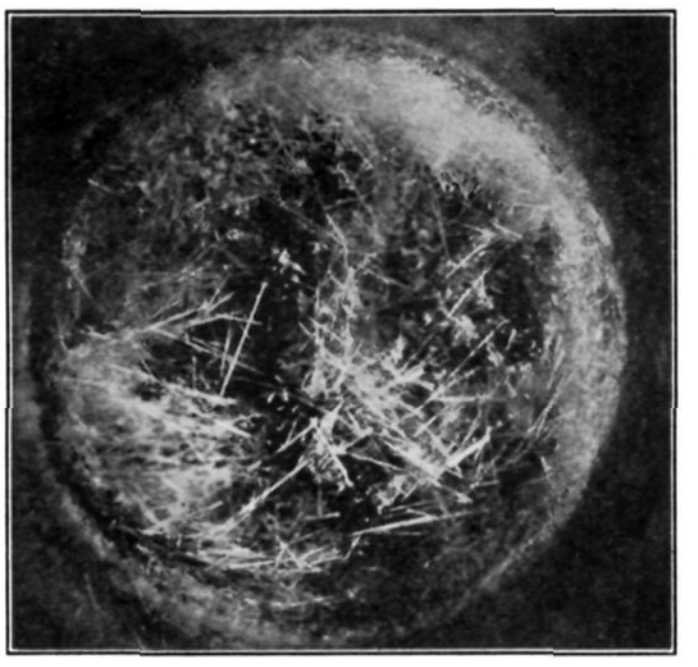
## Needle-Shaped Crystals of Sodium Chloride

BY W. S. HINEGARDNER

A few weeks before the appearance of the note,[1] "Needle-Shaped Crystals of Sodium Chloride Obtained by Percrystallization," the writer noticed a thick mat of fine needle-shaped crystals covering a semi-dry silica gel which had been set aside in a beaker covered with a watch glass. Analysis for chlorine, as well as solubility and taste, indicated practically pure sodium chloride. The needles under these conditions developed usually to a length of 2–2.2 cm. The accompanying photograph shows the masses of needles that formed on the gel in one of the beakers.



Sodium chloride needles forming on fractured silica gel in a beaker.

The gel was prepared from sodium silicate solution of specific gravity 1.118, made from crystalline hydrated sodium silicate, and 3 *N* hydrochloric acid. The needles appeared after the unwashed gel had dried sufficiently to fracture. Other specimens which have since dried sufficiently produced similar masses of the same needle-shaped sodium chlo-

(1) Henry Tauber and Israel Kleiner, THIS JOURNAL, **54**, 2392 (1932).