

DEPARTMENT OF COMMERCE

Bureau of Standards

Certificate of Analyses

OF

STANDARD SAMPLE No. 88

DOLOMITE

ANALYST*	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	MgO	CaO	Na ₂ O	K ₂ O	CO ₂	TiO ₂
1	0.311	0.009	0.086	21.54	30.48	0.08	0.03	47.25	0.004
2 .....	.31	.064	.082	21.42	30.50	-----	-----	-----	.005
Averages .....	.31	.067	.084	21.48	30.49	.08	.03	47.25	.005

	P ₂ O ₅	SO ₃	S	MnO	SrO	C	H ₂	LOSS ON IGNITION
1	0.002	0.035	0.013	0.009	< 0.01	0.08	0.008	47.52
.....	.004	-----	¹ .033	.003	< .01	-----	-----	47.51
Averages .....	.003	.035	.013	.006	< .01	.08	.008	47.52

¹Total sulphur.

* LIST OF ANALYSTS

1. H. B. Knowles, Bureau of Standards.
2. T. R. Cunningham and R. J. Price. The Electro Metallurgical Co., New York, N. Y.

Washington, D. C.
May 1, 1928

George K. Burgess
Director.

**METHODS USED AT THE BUREAU OF STANDARDS IN THE ANALYSIS OF
STANDARD DOLOMITE No. 88**

The results of silica, carbon dioxide, and the oxides of calcium, strontium, magnesium, sodium, and potassium were obtained, in general, by the methods described by W. F. Hillebrand in "The Analysis of Silicate and Carbonate Rocks," United States Geological Survey Bulletin No. 700. Calcium, however, was precipitated four times as oxalate and the magnesium precipitated in each oxalate filtrate, dissolved in acid, combined and reprecipitated as magnesium ammonium phosphate.

Ferric oxide was determined on 10 g samples by precipitating the iron twice as the sulphide from an ammoniacal ammonium tartrate solution and finally precipitating with ammonia. The resulting precipitate was cautiously ignited to oxide and corrected for any silica it might contain.

Alumina was determined by difference. The percentage of oxides obtained with cupferron in 10 g samples and the percentage of phosphorus pentoxide were subtracted from the percentage of oxides obtained by precipitation with ammonia.

Titania was determined by the usual colorimetric procedure after fusing the cupferron precipitate with potassium pyrosulphate, dissolving the melt in 10 per cent sulphuric acid and treating with hydrogen peroxide.

Manganese was determined on complete solutions of 25 g samples by oxidation with sodium bismuthate and titration with ferrous sulphate.

Total sulphur was determined by decomposing 25 g

samples with nitric acid (sp. gr. 1.42) and bromine, evaporating with hydrochloric acid to remove the nitric acid and finally precipitating with barium chloride. The resulting barium sulphate was digested in concentrated hydrochloric acid again precipitated from a 1 per cent hydrochloric acid solution, filtered, washed, ignited, and weighed.

Sulphur trioxide was determined by treating 25 g samples with dilute hydrochloric acid (1:1) and boiling nearly to dryness. The residue was diluted with hot water, filtered, washed, and the filtrate treated with barium chloride as in the usual procedure.

Phosphorus pentoxide was determined by dissolving 25 g samples in nitric acid, fusing the insoluble matter and dissolving it in the nitric acid solution of the sample. A solution containing one to two tenths of a gram of pure aluminum as chloride was added and precipitated with ammonia. The ammonia precipitate was dissolved in nitric acid, the phosphorus precipitated as phosphomolybdate and finally determined as magnesium pyrophosphate.

Carbon and hydrogen were determined by combustion, after separation by the method described by A. C. Fieldner, W. A. Selvig, and G. B. Taylor in Technical Paper No. 212 of the Bureau of Mines on the "Determination of Combustible Matter in Silicate and Carbonate Rocks."

Loss on ignition was determined by cautiously heating 1 g samples in covered platinum crucibles for one hour in an electric muffle at approximately 1,000°C.