

ACIDITY OF GLUCOSE SYRUP AND GRAPE-SUGAR.

BY HORACE E. HORTON.

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AN examination of glucose syrups and grape-sugars will show an acid reaction, and this acidity is due to acid calcium phosphate (rarely), hydrochloric acid, sulphuric acid, and in most instances to sulphurous acid.

The thin liquor obtained by the inversion of starch by acids is strongly acid, and this acidity is reduced by the use of calcium or sodium carbonate to 0.015 gram of hydrochloric acid in 100 grams of liquor.

Acidity due to calcium superphosphate comes from "souring" the bone-black with too strong muriatic acid, when the tricalcium phosphate is broken up with the formation of superphosphate; when a special phosphate black is used in the manufacture of goods, from the occluded superphosphate. I am convinced that in one instance at least, free phosphoric acid had been added to the sample to secure good color.

Sulphurous acid is added to the glucose syrup or grape-sugar when in the cooler.

The acidity is expressed in grams hydrochloric acid or sulphur dioxide in 100 grams substance.

The determination of the acidity was made as follows: 100 grams of glucose or grape-sugar weighed into a beaker and dissolved in about 200 cc. of hot water. A small quantity of carefully prepared delicate litmus solution added, and then titrated with $\frac{N}{10}$ potassium hydroxide.

I have determined the acidity of a number of American brands with the following results:

CHAS. POPE GLUCOSE CO.

Geneva XXX. 0.0080 sulphur dioxide.

" Jelly 43° Bé. 0.0136 " "

CHICAGO SUGAR REFINING CO.

Confectioners Glucose, 0.012 0.018 0.018 0.018 0.018 0.015 SO₂.

AMERICAN GLUCOSE CO.

41° Bé. Mixing Glucose,	0.0184	0.016	0.019	0.014	SO ₂
42° " Crystal Glucose,	0.0184	0.0165	0.0205	0.0205	"
43° " Confectioners' Glucose,	0.0184	0.0184	0.0190	0.0184	0.020 "
42° " Brewers' Jelly,	0.0164	0.0164	0.0142	0.0123	"
44° " Export,	0.0172	0.021	0.023		"
42° " Acid Glucose,	0.050	0.048	0.052	0.064	0.0505 "
45° " Export,	0.0225	0.0201			"
"70" Sugar,	0.036	0.032	0.0279	0.021	0.019 HCl.
	0.016	0.018	0.017	0.027	0.028 "
	0.0295	0.0286	0.032	0.040	0.040 "
	0.045	0.0408	0.043		"

WAVERLY FARM, TOPEKA, KAN.,
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ASH IN GLUCOSE SYRUP AND GRAPE-SUGAR.

BY H. E. HORTON.

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OF the quantity of ash in glucose syrup and grape-sugar now offered in open market, little is published. Wishing to throw some light on this subject I present figures obtained on analysis of a number of American brands.

The ash determinations were made as follows: Five to ten grams of syrup or sugar weighed in a platinum dish of about 100 cc. capacity, heated with great care until water is expelled, slowly carbonized, and then heated in a muffle at low redness to a finish.

Hydrated grape-sugar, so-called "70" sugar, manufactured by the American Glucose Co.:

Per cent.							
0.536	0.540	0.510	0.510	0.530	0.67	0.31	0.22
0.536	0.540						

Samples of "Special Coloring," American Glucose Co.:

Per cent.		Per cent.
0.31	to	0.52

Samples of "Climax" or "Acme" sugars, manufactured by American Glucose Co.:

"Special dark."	"Dark."	"Light."
0.205	0.16	0.15