

these experiments. The loss of weight is not increased either in rapidity or in amount by dissolving in alcohol and evaporating with the alcohol.

The addition of any solid matter to alcohol causes an increase in the density, and a consequent apparent reduction in alcoholic strength as indicated by the hydrometer. It is not unlikely that glycerine may be added instead of sugar, in order that the acquired degree of sweetness may be obtained without so great apparent reduction of alcohol strength. In order to obtain some trustworthy data on the subject of the difference in gravity produced by addition of glycerine and sugar respectively to dilute alcohol, I caused the following experiments to be made :—

	Specific Gravity at 15·5° C.	Corresponding Alcohol (from Hehner's Tables.)		Weight of Residue. — Grammes per Litre.	Alcoholic strength by Dis- tillation. — p.c. by Wgt.
		Weight.	Volume.		
Expt. 1	·9489	35·05	41·90	0·096	34·94
do 2	·9510	34·05	40·79	5·008	35·03
do 3	·9504	34·33	41·11	4·800	35·05
do 4	·9334	43·05	50·62
do 5	·9388	40·40	47·78	18·720
do 6	·9420	38·78	46·02	28·268
do 7	·9414	39·10	46·37	19·996
do 8	·9458	36·67	43·69	29·640

- Expt. 1—Mr. Babington.—Commercial grain spirit, No. 1 quality, diluted with distilled water.
- do 2 do Dilute alcohol as above, prepared with 5 grammes cane sugar per litre. The residue due to sugar is (5·008—0·096) = 4·912, instead of 5 grammes added, showing 1·76 per cent moisture in the sugar.
- do 3 do Alcohol as above, with addition of 5 grammes glycerine per litre. The residue due to glycerine was (4·800—0·096) = 4·704, instead of 5 grammes. Loss of 5·92 per cent glycerine in drying.
- do 4—Mr. Touchot.—Grain spirit diluted with distilled water.
- do 5 do Above diluted alcohol with 20 grammes glycerine per litre. A loss of 1·280 in the glycerine is 6·40 per cent.
- do 6 do As in No. 5, but 30 grammes glycerine per litre added. A loss of 1·732 in glycerine is 5·77 per cent.
- do 7 do As in No. 5, but 20 grammes cane sugar per litre added.
- do 8 do As in No. 5, but 30 grammes sugar added. This lost in drying 1·2 per cent of weight.

These results confirm those given in the preceding table, showing that glycerine cannot be dried in asbestos without loss of about 5 per cent of its weight. They further show that while the addition of 0·5 per cent of sugar reduces the apparent alcoholic strength by about 1·11 per cent. (volume), the addition of the same weight of glycerine reduces the apparent strength only 0·79 per cent; also, while 2 and 3 per cent sugar added reduced the apparent alcohol strength by 4·25 and 6·93 per cent (volume) respectively, the addition of the same weights of glycerine reduced the apparent strength by 2·84 and 4·60 per cent. In the absence of any recognized standard as to alcohol strength for rye whiskey it is, of course, impossible to pronounce as to the genuineness of any of these samples. None of them have been found to contain anything that could be considered injurious to health. It cannot be denied that certain of them could be selected as much better value than others for the price put upon them by the vendors, if the alcohol content were taken as the basis of valuation.