

dehydrate
In fermentation. Maltose is split up into
alcohol & Carbonic acid. Converting all sugar into
P.S. = 57.06 by Vol absot alcohol



Health Department

CITY HALL

VANCOUVER, B. C.

To get Proof Spirit
 $\div 90 \text{ by Vol of } 57.06$

22 P.S. allowed

Food and drug act - Exy

920 - 947.4

Brandy, Whisky, Rum, may be 25 U.P., Sp & = as high as 947.4
and there may be only 42.8 absot alcohol by Vol =
75% Proof Spirit -

Gin - may be 35° U.P. - may only contain 37.1 by Vol of absot alcohol = 65% P.S.

A Sample of whisky, 44 U.P. = 56 P.S. what % of spirit of 25 U.P. does it contain
25 U.P. = 25 P.S. Therefore $\frac{56 \times 100}{25} = 224\%$ of spirit of 25 U.P. strength and
~~74.6%~~ 25.4% of added H₂O

The % amounts of absot alcohol generally present in spirits -
Wines = 8 to 18
Claret = 10% absot
Aloe porters 5 to 8
Small beer = 1 to 3

Aldehyde is a compound midway between alcohol & acid

Fusel oil = is a mixture of oily bodies chiefly amylic alcohol. Should not exceed 0.2%

Fusel oil = shows unmaturing spirits.

Alcohol test for = Solⁿ is warm in a test tube with few drops of I in H₂O and enough
NaOH added to nearly decolorize. = odour of Iodoform. also ppt -

Sp & by evaporation, add H₂O

Sp & of original 0.9900
" " Expt 1.0009
then add 1 = 1.9900
 $\frac{1.0009}{.9891} = 8.10 \text{ by Vol.}$



Whisky

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Sp gr - 924 - 947.4 - 25 up = 75 P.S.

Whisky = Barley, corn, rye, (maize) oats mixed with malt.

Smoky flavor = due to malt being dried over peat -

Low Wines = product of joint distillation.

U.S. Standard Residue from 100 cc not to exceed 0.5 gram. Should not be sweet nor spicy. Should dissolve in 10 cc H₂O (cold), and the soln should only be color a pale green when heated with a drop of conc. H₂SO₄ (a deeper color would indicate more than traces of tannin)

In evaporation the liquor on the water bath. The last traces volatilized should have an agreeable odour free from harshness, showing the absence of fusel oil -

Reaction = slightly acid. not more than 1.2 cc N alk for 100 cc of liquor, litmus as indicator -

Adulteration

Deluting Neutral spirits to proper strength

Color - Caramel (brown sugar)

Body - Prune juice

Flavor - Essential oils as - oil of Wintergreen and artificial fruit essences.

Burns Taste - Creosote.

Cayenne pepper -

Brandy - from grapes - Brandy -

Same as Whisky - except 1 cc $\frac{H}{10}$ alk (not more) for 100 cc of brandy using litmus -

Adulteration - Residue for whisky - also check - Fusel oil present -



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Brandy

addition contains

alcohol reduced

Flavor - Syrup of raisins

Prune juice

rum

Aether Ether

Infusion of Green Walnut shell

" " Bitter almond "

Sugar a Caramel is common

- Rum -

Rum - from molasses and waste juices from raw sugar -

Fusel oil - present -

addition = alcohol diluted

Color - Caramel

flavor - rum essence

Prune juice

Gin

Gin - from malted barley & rye and distilled with juniper berries and sometimes hops, sometimes oil of turpentine is added as addition



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Analysis Distilled Liquor.

Extract - measure 100 cc @ 15.6°C evaporate nearly to dryness on water bath. then transfer to water oven and dry for 2 1/2 hrs

Acids - Titrate 100 cc with $\frac{N}{10}$ using phenolphthalein.
1 cc $\frac{N}{10}$ alk = .006 acetic acid —

Esters (Ethers) - Dilute 200 cc of sample with 25 cc H_2O and slowly distill into a 200 cc flask until nearly to mark. Complete the volume with wash bottle —

Specifically neutralize 50 cc of distillate @ $\frac{N}{10}$ alk using phenolphthalein, and add 25 to 50 cc of $\frac{N}{10}$ alk in excess, boil for 1 hour with reflux condenser. Cool & titrate @ $\frac{N}{10}$ acid using phenolphthalein. X cc $\frac{N}{10}$ alk used in saponification by 0.0088 = grams of esters as ethyl acetate.

Fusel oil

Detect by smell on evaporation on water bath —

Agitate 30 cc liquor with 2 cc dil H_2O_2 , evaporate on water bath to 3 cc. Cool add 5 cc conc H_2SO_4 , odour of Valerianic & butyric acids —