

ADDING BEVERAGE ALCOHOL DISTILLATION TO AN EXISTING BREWERY



Presented by Stephen Harkness, P.Eng., President, **cemcorp** LTD.

MBAC District Ontario Spring Technical Meeting, April 23, 2015

BUILT BY EXPERIENCE. MANAGED WITH STRATEGY

Coming of a Coppersmith

The history of the Company known today as **cemcorp LTD.** goes back to 1853, when an Englishman Henry Gough Booth, a brewer and coppersmith, opened Booth & Sons, at 278 Yonge St., Toronto, Canada. He had learned his trade in Cranbrook, England and was an experienced craftsman by the time he emigrated. His second son George Booth who was apprenticed as a coppersmith to his father, took over the business in 1870. The first link with the present company was forged when William Coulter Sr. started his apprenticeship with the Booths in the same year.



The Business Grows

The Booths' business steadily expanded in every conceivable article of brass and copper work that could be manufactured including copper utensils, brewery kettles, stills, confectioners' pans, kettles, water systems, wash boilers, and food service equipment for hotels.

William Coulter Sr. soon became a master. With his practical knowledge and ability to supervise others, it seemed natural that he would start in business for himself which he did in 1886 with a fellow coppersmith to found the Coulter & Campbell Co. The Booth & Coulter companies merged in 1907 with George Booth as President and William Coulter Sr. as Vice President of the new firm. By this time William Coulter Sr.'s 2 sons, William C. Coulter and Albert E. Coulter were fully involved in the family business. The merger rounded out the new firm's field of operations by providing a brass foundry, tin-smithing, machine shop and stamping press operations. With the outbreak of World War I, the Booth Coulter company set up a munitions department and Canada's first Electroplating plant. In 1923, the Coulter family bought out the Booth family. George Booth moved to Michigan to expand the Cranbrook Institute of Fine Arts that he had founded in 1907 and which is highly distinguished still today. The company became known as Coulter Copper & Brass Co. Ltd.

Coulters in Command

Following World War I, the company converted the munitions department into the rapidly growing area of automotive parts manufacturing. The science of metallurgy was also advancing in great strides and the company moved into manufacturing many products with these new alloys, such as monel, stainless steel, inconel. The initial business started by Henry Gough Booth of Coppersmithing had evolved into twenty businesses of metalsmithing all rolled into one. And so with other developments - branches, like the branches of a banyan tree, had grown into independent trunks.

In 1931 William C. Coulter took over as President, joined by his 2 sons, Howard and Warren R. Coulter. The company was

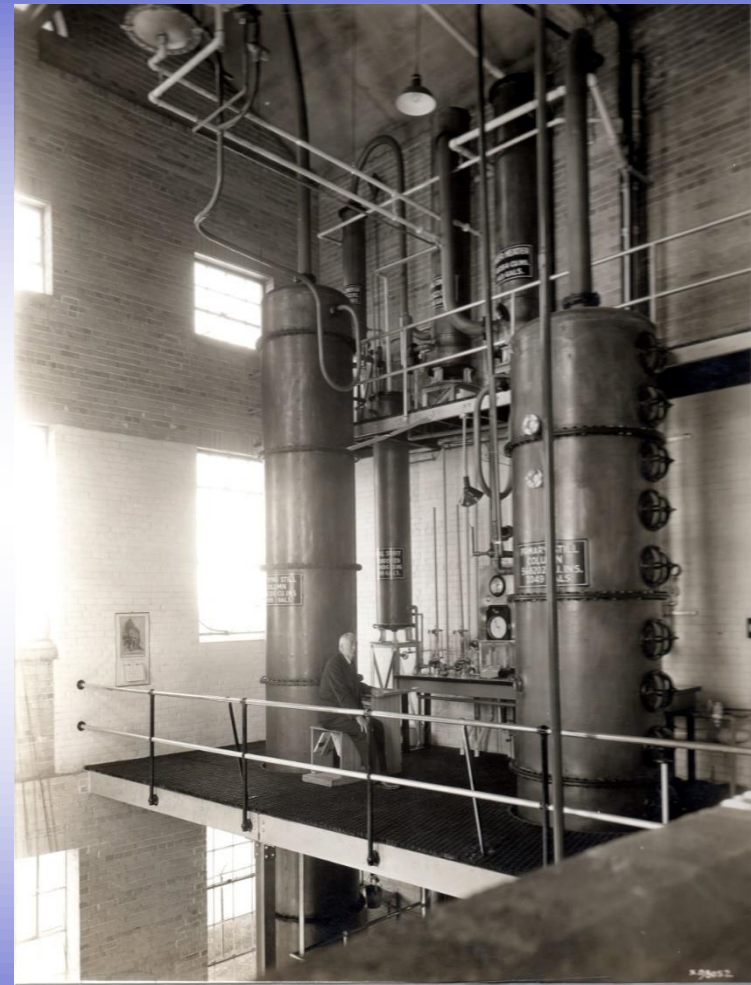
divided between the 2 brothers as Albert left to start his own automotive parts manufacturing business in competition to Coulter Copper & Brass. In 1956 Warren R. Coulter took over as President and later was joined by his 2 sons, Terry and Michael A. Coulter. In 1976 Michael A. Coulter took over as President and the company was again divided as Terry Coulter left to carry on the Swimming Pool and Accessories (pumps, filters) business that the company had started in 1959.



Throughout all this time, the brewery, distillery, food processing and chemical processing manufacturing business remained the core of the business. The company could now design, manufacture, install, commission, and startup whole plants with modern technology in these industries, producing breweries, fermenters, distillation towers and heat exchangers, evaporators, industrial mixing kettles, reactors and a wide range of custom fabrications, boilers, pressure vessels to International Codes and Standards.

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The Coulter Copper & Brass company continued until 1981 when it merged with another fabricator who was later acquired by a large American multinational company. In 1984, Michael A. Coulter decided to shed all manufacturing capabilities to focus solely on the engineering and project management aspects of the business and formed **cemcorp LTD. CONSULTING ENGINEERS**. This realignment, together with the retaining and acquiring of a select core of international experts, and the building of strategic alliances with fabricators and contractors, has given **cemcorp** a flexibility unequalled anywhere in the industry. Today, **cemcorp** provides a unique Project Management Consulting Engineering service to the Industrial Process industries.







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DIFFERENCES

BREWERY VS. DISTILLERY

1. NOMENCLATURE/
TERMINOLOGY

2. RAW MATERIAL

3. MASHING/COOKING

4. FERMENTATION
PROCESS

5. DISTILLATION
PROCESS

6. FINAL PRODUCT

7. BUILDING DESIGN

8. LICENSING
REQUIREMENTS

1. NOMENCLATURE PROOF STRENGTH

U.S. DEFINITION: 1 PROOF = 0.5% A/V
i.e. 200 PROOF = 100% A/V

BRITISH DEFINITION: 100 PROOF = 57.06% A/V
i.e. 175.25 PROOF = 100% A/V

METRIC DEFINITION: 1°GL (GAY LUSSAC) = 1% A/V
i.e. 100°GL = 100% a/v

1. NOMENCLATURE

- **BREWERS MEASURE VOLUMES IN HECTOLITRES**
1 HL = 0.85 US Barrels = 0.61 UK Barrels (BBL)
DISTILLERS MEASURE VOLUMES IN LAA (LITRES ABSOLUTE ALCOHOL) OR PROOF GALLONS
- **CANADIAN CASE OF BEER IS 24 BOTTLES 341 ml**
CASE OF LIQUOR IS 12 BOTTLES 750 ml
- **CANADIAN BREWERS STATE STRENGTH AS %A/V**
(AMERICAN BREWERS STATE STRENGTH AS %A/W)
DISTILLERS STATE STRENGTH AS % OF LAA
- **REFLUX, DEPHLEGMATOR, DOWNPIPE, WEIR, CONGENERES**

2. RAW MATERIAL

WHISKY/WHISKEY, including CANADIAN WHISKY, AMERICAN WHISKEY & BOURBON

– CORN, RYE, MALT

SCOTCH WHISKY AND IRISH WHISKEY

– MALT

RUM – MOLASSES OR CANE JUICE

VODKA – ANY STARCH OR SUGAR

GRAPPA, LIQUEURS, BRANDIES SNAPPS

- FRUIT

3. MASHING/COOKING

1. BATCH COOKERS

2. CONTINUOUS COLUMNAR COOKERS

3. U-TUBE CONTINUOUS JET COOKERS

4. EXTRUDERS

4. FERMENTATION

BREWERIES

FERMENT 5 – 20 DAYS @ 12°C. – 20° C.

@ 3% – 9% A/V

DISTILLERIES

FERMENT 54-72 HRS @ 32°C. - 34°C.

@ 8% – 16% A/V

5. DISTILLATION SYSTEMS

1. BATCH STILLS
SIMPLE BATCH
KETTLE W/ COLUMN(S)

2. CONTINUOUS STILLS

SIMPLE POT STILL



- GIN
- MALT WHISKY
- SCOTCH WHISKY
- IRISH WHISKEY
- TEQUILA
- RUM
- PISCO

ALAMBIC POT STILL
GRAPPA, BRANDY, COGNAC,
ARMAGNAC



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KETTLE WITH COLUMN
BOURBON, AMERICAN WHISKEY,
HEAVY RUM, LIQUEURS

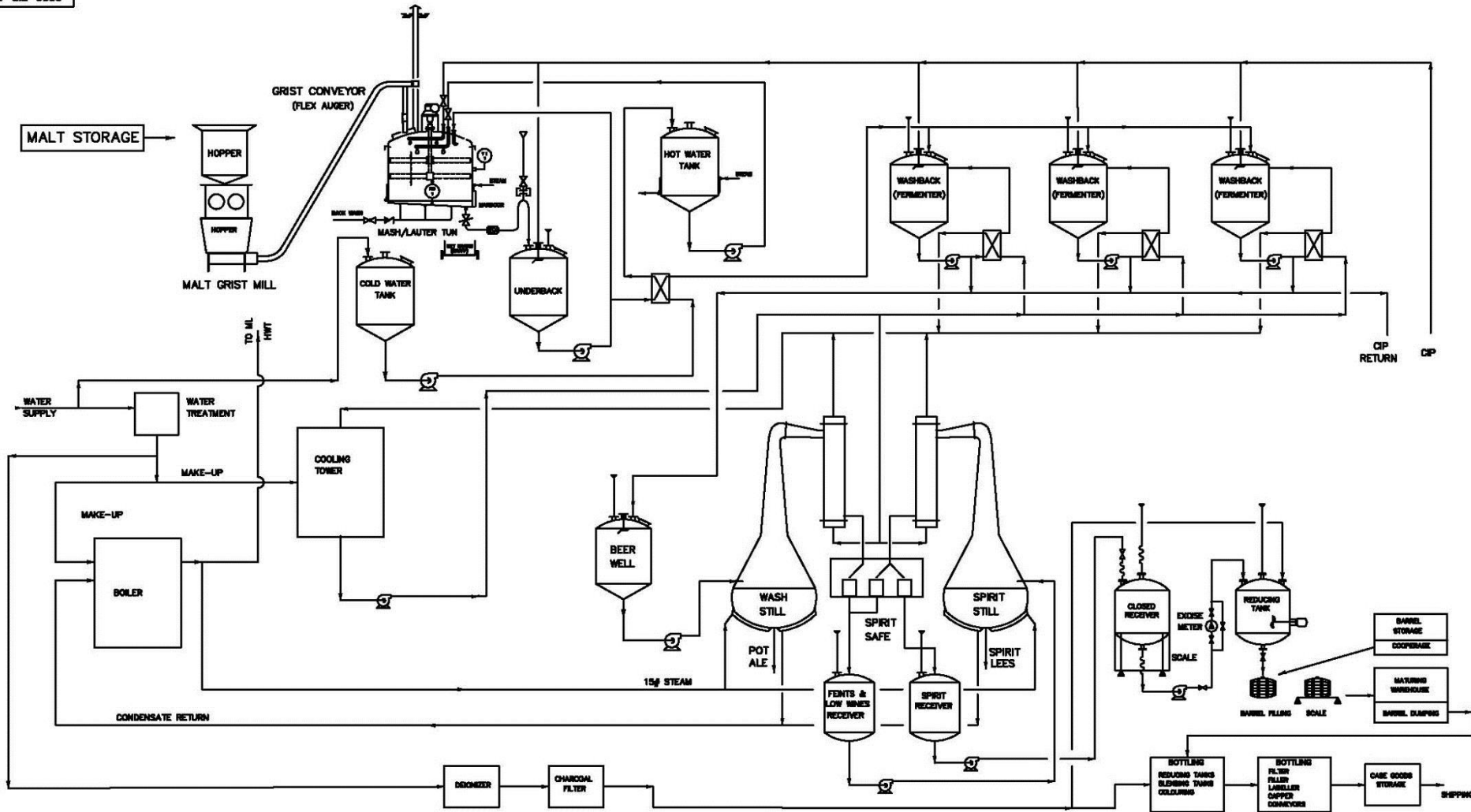


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cemcorp LTD.			
MALT SPIRIT PRELIMINARY FLOW SCHEMATIC			
DESIGN BY	DATE	DATE IN USE ON	FILE NO.
0252	0252	0252	0252
DATE	BY	DATE	BY

5. DISTILLATION SYSTEMS

2. CONTINUOUS STILLS

W/SIEVE TRAYS

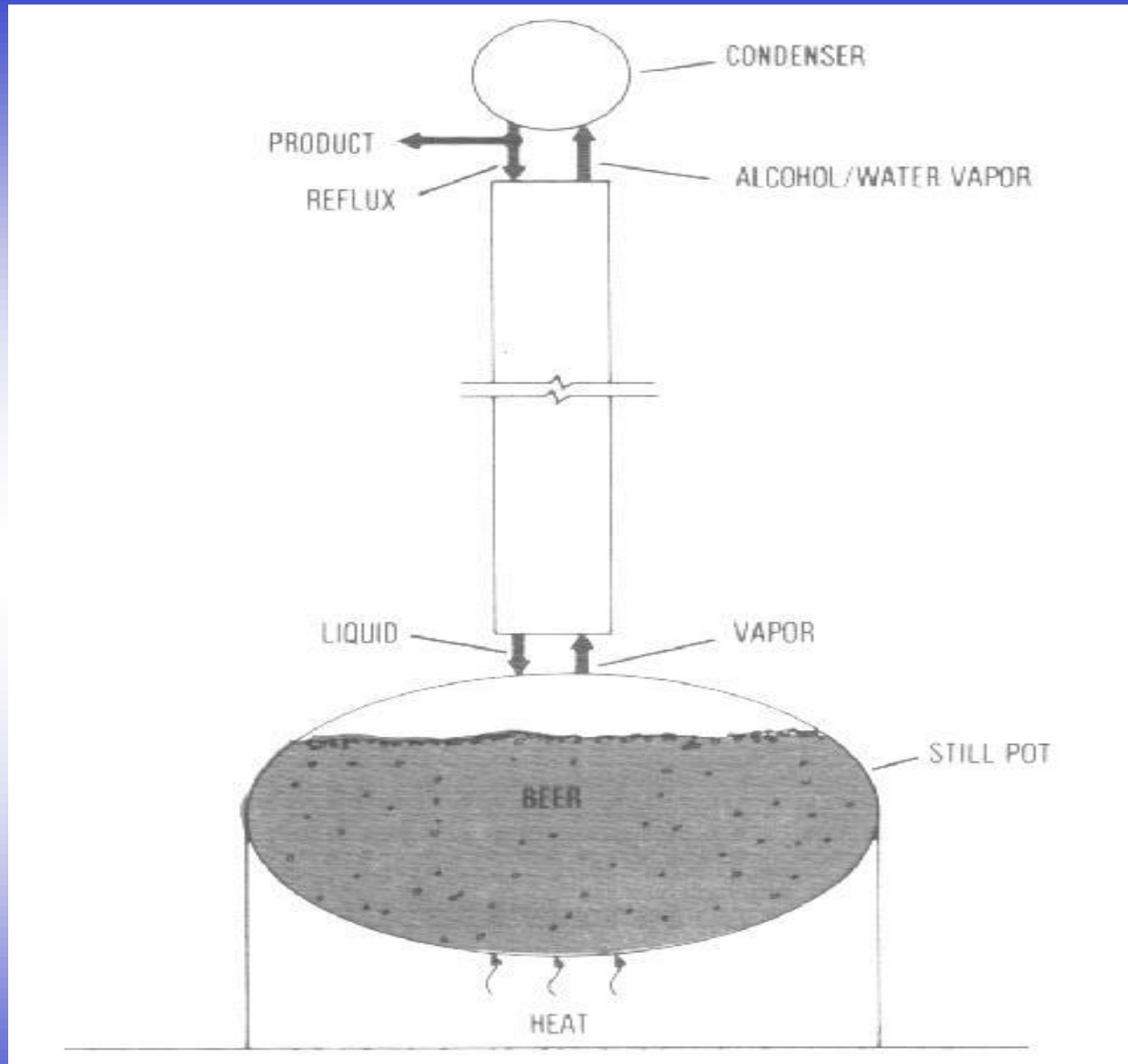
W/BUBBLE CAP TRAYS

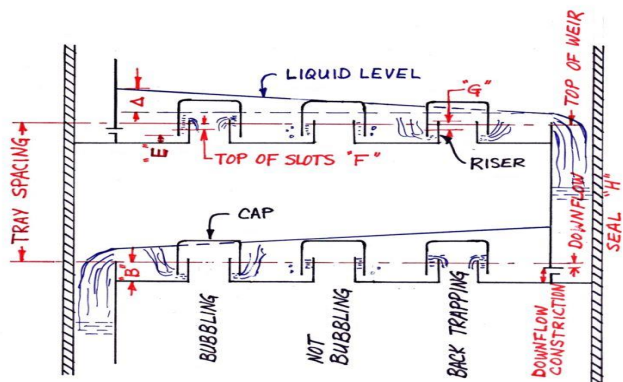
W/PACKING



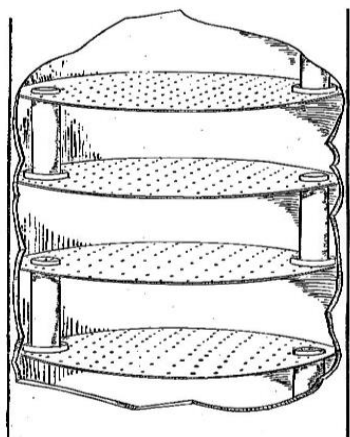
CONTINUOUS STILL

- **GRAIN ALCOHOL**
- **VODKA**
- **GRAIN WHISKEY**
- **BOURBON**
- **CANADIAN WHISKEY**
- **IRISH WHISKEY**



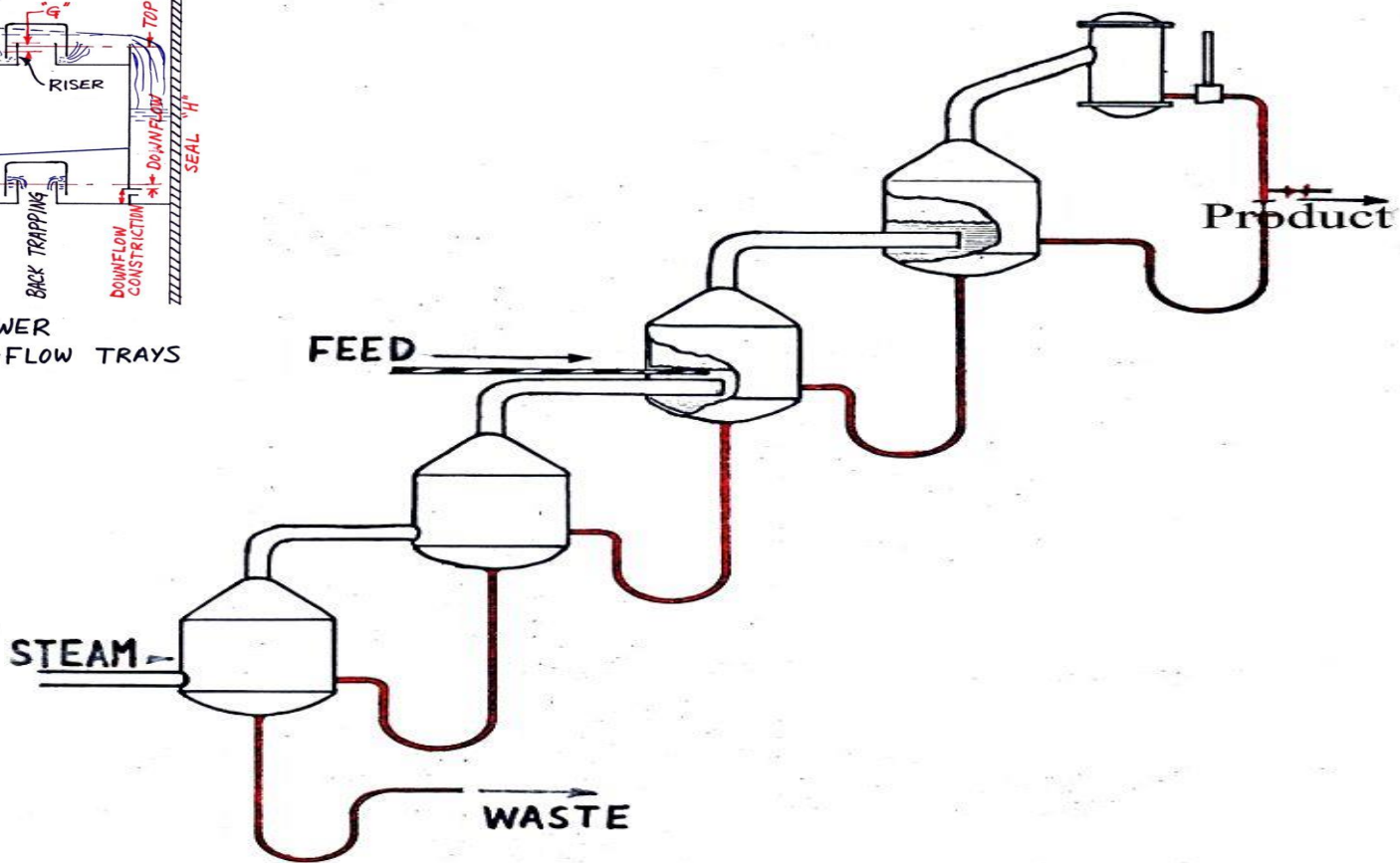


CROSS SECTION OF BUBBLE TOWER WITH SINGLE CROSS-FLOW TRAYS



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ILLUSTRATION # 15



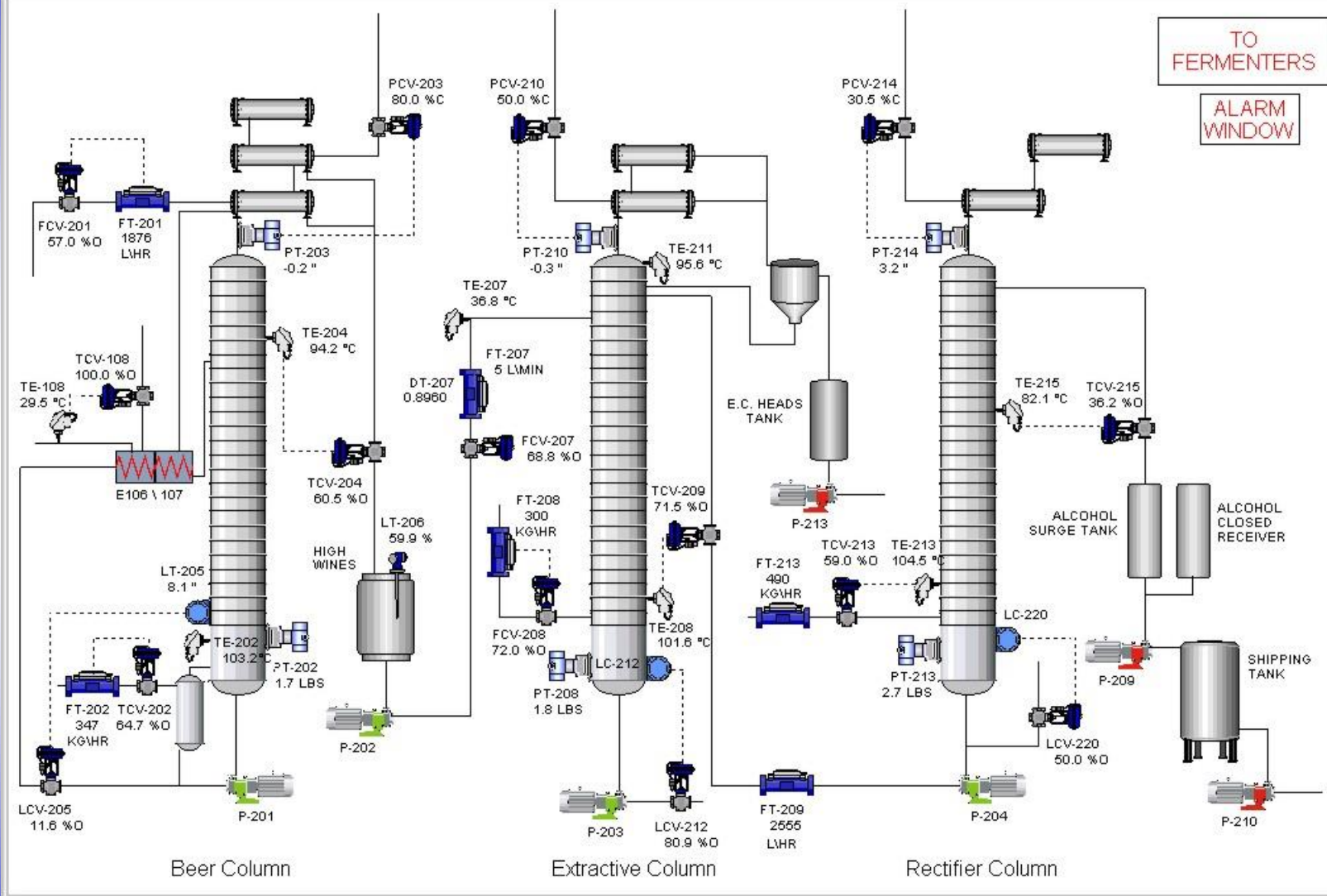
SERIES OF INTERCONNECTED POT STILLS

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File View Alarm Window Help

Still House



6. FINAL PRODUCT

BEER IS 0.5% - 8.0% A/V

DISTILLED SPIRITS ARE DISTILLED TO:

- **WHISKY/WHISKEY** 70% - 94% A/V
- **GIN** 80% A/V
- **RUM** 70% - 94% A/V
- **VODKA (NEUTRAL SPIRIT)** 96% A/V
- **BOURBON** 80% A/V MAX
- **BRANDY, COGNAC** 70% A/V

7. BUILDING DESIGN

ALCOHOL CLASSIFICATION CHART

CHARACTERISTICS	CLASSIFICATION
20% ALCOHOL AND GREATER WITH CLOSED CUP FLASH POINT $< 38^{\circ}\text{C}$	CLASS 1B FLAMMABLE LIQUID
6% - 20% ALCOHOL WITH CLOSED CUP FLASH POINT $>38^{\circ}\text{C}$ AND $< 60^{\circ}\text{C}$	CLASS II COMBUSTIBLE LIQUID
0 – 6% ALCOHOL WITH CLOSED CUP FLASH POINT 60°C AND $<93^{\circ}\text{C}$	CLASS III COMBUSTIBLE LIQUID

7. BUILDING DESIGN

- **CLASS 1 DIV 1 ELECTRICAL WHERE ALCOHOL STRENGTH 20% A/V OR MORE (STILLHOUSE, ALCOHOL STORAGE).**
- **FIRE CODE SECTION 4 PART 9 APPLIES WHERE >20% A/V.**
- **CLASS 1 DIV 2 ELECTRICAL IN WAREHOUSE AND XP OR PNEUMATIC PACKAGING UP TO FILLED BOTTLES.**
- **NO FLOOR DRAINS TO SEWER IN THESE AREAS.**

7. BUILDING DESIGN

- LEL “SNIFFER” IN STILLHOUSE INTERLOCKED TO XP CEILING FAN.
- 4 HOUR FIREWALL SEPARATION FROM MAIN PLANT.
- NFPA 68 CODE (EXPLOSION VENTING) WHERE $>20\%$ A/V.
- SPRINKLER DELUGE SYSTEM, W/SPRAYS UNDER ALCOHOL STORAGE TANKS.

8. LCBO LICENCING

(DIFFERENT LICENCES THAN BREWERY LICENCES)

1. LCBO

2. CRA EXCISE

3. AGCO (IF RETAIL STORE, 3173 APPLIES)

8. LCBO LICENCING

AGCO 3173

- **MUST HAVE CRA MANUFACTURING LICENCE**
- **RETAIL STORE MUST BE ON SAME PROPERTY AS DISTILLERY**
- **SPIRITS SOLD MUST BE BRANDS OWNED BY MFR.**
- **MINIMUM BATCH STILL CAPACITY OF 5,000 LITRES OR MINIMUM CONTINUOUS STILL CAPACITY OF 150 LAA/HR.**
- **MFR. MUST MAKE AT PRODUCTION SITE FROM START TO FINISH 50% OF VOLUME OF SPIRITS SOLD AT RETAIL STORE**
- **REMAINING 50% MUST BE DISTILLED, BLENDED, AGED OR BOTTLED AT PRODUCTION SITE.**

http://www.agco.on.ca/pdfs/en/guides/3173_a.pdf

PLANNING STEPS

1. **PREPARE CONCEPTUAL DESIGN**
2. **CONDUCT MARKET STUDY TO DETERMINE CAPACITY, PRODUCTS**
3. **FEASIBILITY STUDY (CAPITAL & OPERATING COSTS, BUILDING CODE , LICENCING, TECHNOLOGY)**
4. **PROJECT JUSTIFICATION (CHECK FEASIBILITY STUDY ASSUMPTIONS)**

PLANNING STEPS

5. FINANCING
6. PROJECT PLANNING (EPCM?)
7. CONSTRUCTION/IMPLEMENTATION
8. FINAL INSPECTION/TESTING/LCBO APPROVALS
9. COMMISSIONING, STARTUP, OPERATION MANAGEMENT

Key Message

1. UNDERSTAND THE DIFFERENCE
2. THOROUGH PLANNING
3. GET PROFESSIONAL HELP

Thank you for your attention

Any Questions?

Thank you for your attention

ADDITIONAL INFORMATION

Contact: Stephen Harkness or Michael Coulter at **cemcorp LTD**

2181 Dunwin Drive, Mississauga, Ontario L4L 1X2

TEL: (905) 566-7227 or TOLL FREE: 1-888-6PC-BREW

Email: cemcorp@cemcorp.com

www.cemcorp.com



ADDITIONAL PLANNING STEPS

GO TO CEMCORP/COM/ARTICLES FOR FULL DETAILS

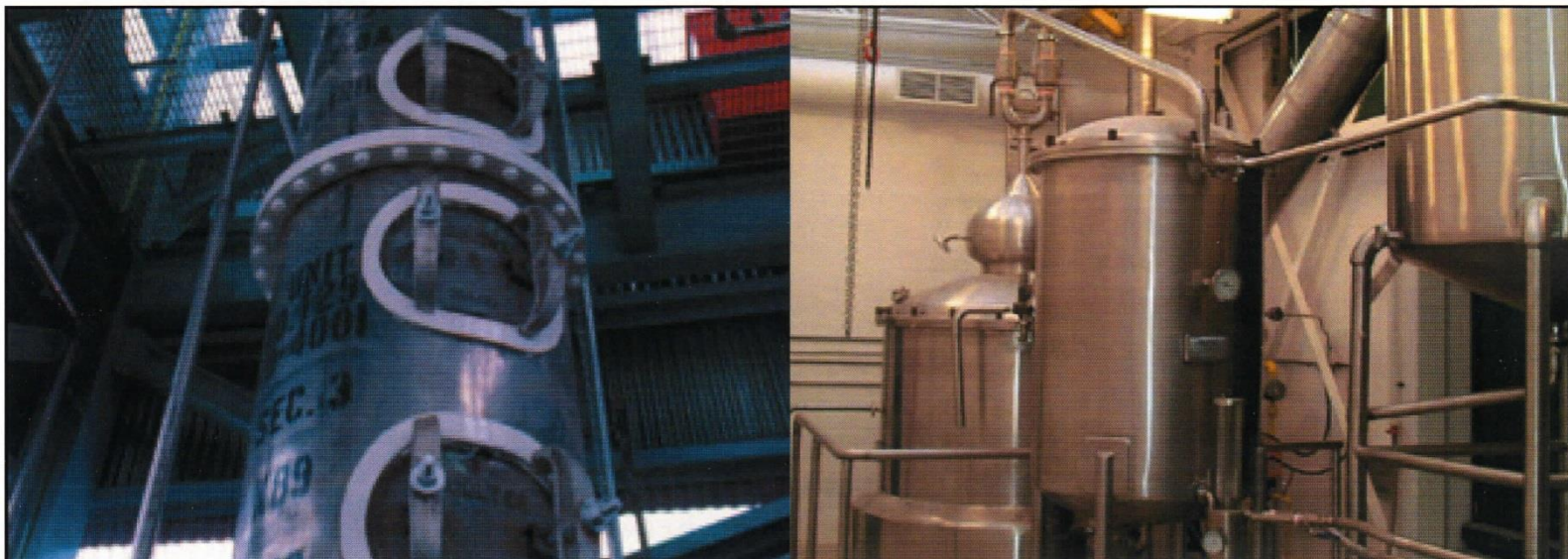
BUILDING A MICROBREWERY OR BREWPUB

WHAT THEY DO

Cemcorp of Mississauga, Ontario, designs projects and the process, and coupled with the company's history as a fabricator and contractor, brings a single source responsibility that gives its clients more flexibility to have direct input in the design and implementation of a project. If you want a brewery or distillery built, here's what they can do for you:

- **BREWERIES:** Cemcorp Ltd. specializes in complete plant designs, from Brewpubs to Microbreweries and large commercial breweries, including: Grain Receiving and Milling; Brewhouses, including liquefaction, lautering, brewing; Fermentation, Unitanks, Yeast Propagation, Ageing & Storage; Filtration, CO2 collection/addition; Refrigeration systems design; **PCbrew**®, PC-computer control systems including hardware and software based on flow logic for precise control; Spent Grain handling/ dryers, batch and continuous; Water Pre-Treatment/Treatment; Effluent Treatment/Alcohol Recovery; Commissioning, Start-up, and Operator Training.
- **ALCOHOL DISTILLERIES:** Cemcorp specializes in complete plant designs for both Potable Spirits (Whiskeys, Rum, Gin, Vodka, Liqueurs) and Industrial Alcohols (Fuel, Chemical) including: Starch liquefaction conversion and saccharification; Fermentation, Yeast Propagation, Enzyme preparation; Sterilizers and reactors; Distillation columns and internals, batch stills and multi-column continuous, dehydrators; Evaporators and dryers, batch and continuous, mixers; **PCflow**® PC-computer control systems including hardware and software; Effluent Treatment, alcohol recovery; Water Pre-treatment/Treatment; Cogeneration; Commissioning, Start-up; and operator training.





Continuous?

or

Batch Distillation?

Contact us if you are planning or expanding your distillery. We can provide:

- **Conceptual Designs and Capital & Operating Cost Estimates for your Business Plans**
- **“Bankable” Economic Feasibility Studies for Investors’ and Lenders’ Financing Plans**
- **Design Engineering, Procurement, Construction Management, Project Management**
- **Detailed Distillation Designs from Pot Stills to ENA Continuous Stills**

5 Generations of experience as Distillery Designers and Builders.

cemcorp LTD.
CONSULTING ENGINEERS



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cemcorp LTD., CONSULTING ENGINEERS, Mississauga, Ontario
Managing Director, Designated Consulting Engineer

Tri-Canada Inc., Mississauga, Ontario (purchaser of Coulter Copper & Brass)
COULTER® Product Manager

Gasohol Inc., Toronto, Ontario
President & General Manager

Coulter Copper & Brass Ltd., Toronto, Ontario
President and General Manager & Owner (1976-1981)
Vice-President, Chief Engineer, Director (1972-1976)
Sales & Project Engineer (1969-1972)

Booth-Coulter Inc., Montréal, Québec
Coulter Anodizing Limited, Toronto, Ontario
President and General Manager (1977-1981)
Vice-President, Chief Engineer (1972-1977)



Building or renovating a distillery? Mike Coulter will git ‘er done!

by Dennis McCloskey

I had never met Michael A. Coulter until the day I walked into his office in Mississauga, Ontario, on a cold, Canadian winter afternoon in 2007. Ten seconds after entering his spacious, 2,600 sq. ft. workspace above his magnificent residence, I knew all I needed to know about this world-renowned designer of distilleries and breweries.

GILLMAN

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Blog Post

26 Contract Brewing Arrangements in Ontario – Selected Legal Issues

FEB

by : Gary Gillman comment : Off

2014

Today we include in the [Publications](#) section of this website an article Gary authored called [Contract Brewing – Selected Legal Considerations](#). The article canvasses numerous legal considerations of importance to anyone who has concluded, or is thinking of concluding, an agreement whereby an operating brewery brews beer to be marketed by a non-brewing party (generally an entrepreneur) who has developed a specific brand name and marketing approach. The article reflects the expertise of Gillman Professional Corporation in the field of beverage alcohol regulatory law.



About the Author

Gary Gillman holds undergraduate law degrees in Civil Law and Common Law from McGill University in Montreal, Quebec. He is a member of the Quebec Bar and has been a member of the Ontario Bar since 1983. He was trained and practiced for many years in nationally-known law firms in Montreal and Toronto, principally in numerous areas of corporate and commercial law. In 1995, he obtained a Master's Degree (LL.M) with Distinction in European Management and Employment law from the University of Leicester in England. His training in the law of European economic and political integration allows him to help clients understand international business and legal trends, the North American Free Trade Agreement and economic globality. Gary regularly attends and speaks at professional conferences and keeps current on all the legal areas he covers. Gary has authored during his career numerous legal articles and essays for professional trade journals. Gary is also the executive







PCbrew®



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CONTINUOUS DISTILLATION

- **COFFEY PATENT STILL (2 COLUMN SYSTEM)**
- **BARBET DISTILLATION**
 - **OPTIONS: 2,3,4,5 COLUMN SYSTEMS**
- **GUILLAUME DISTILLATION (EXTRACTIVE/AZEOTROPIC DISTILLATION)**
 - **OPTIONS: 2,3,4,5 COLUMN SYSTEMS**
- **PRESSURE/VACUUM DISTILLATION SYSTEMS**
 - **OPTIONS: 2,3,4,5 COLUMN SYSTEMS**
- **COMBINATION FERMENTATION/DISTILLATION/STILLAGE SYSTEMS**

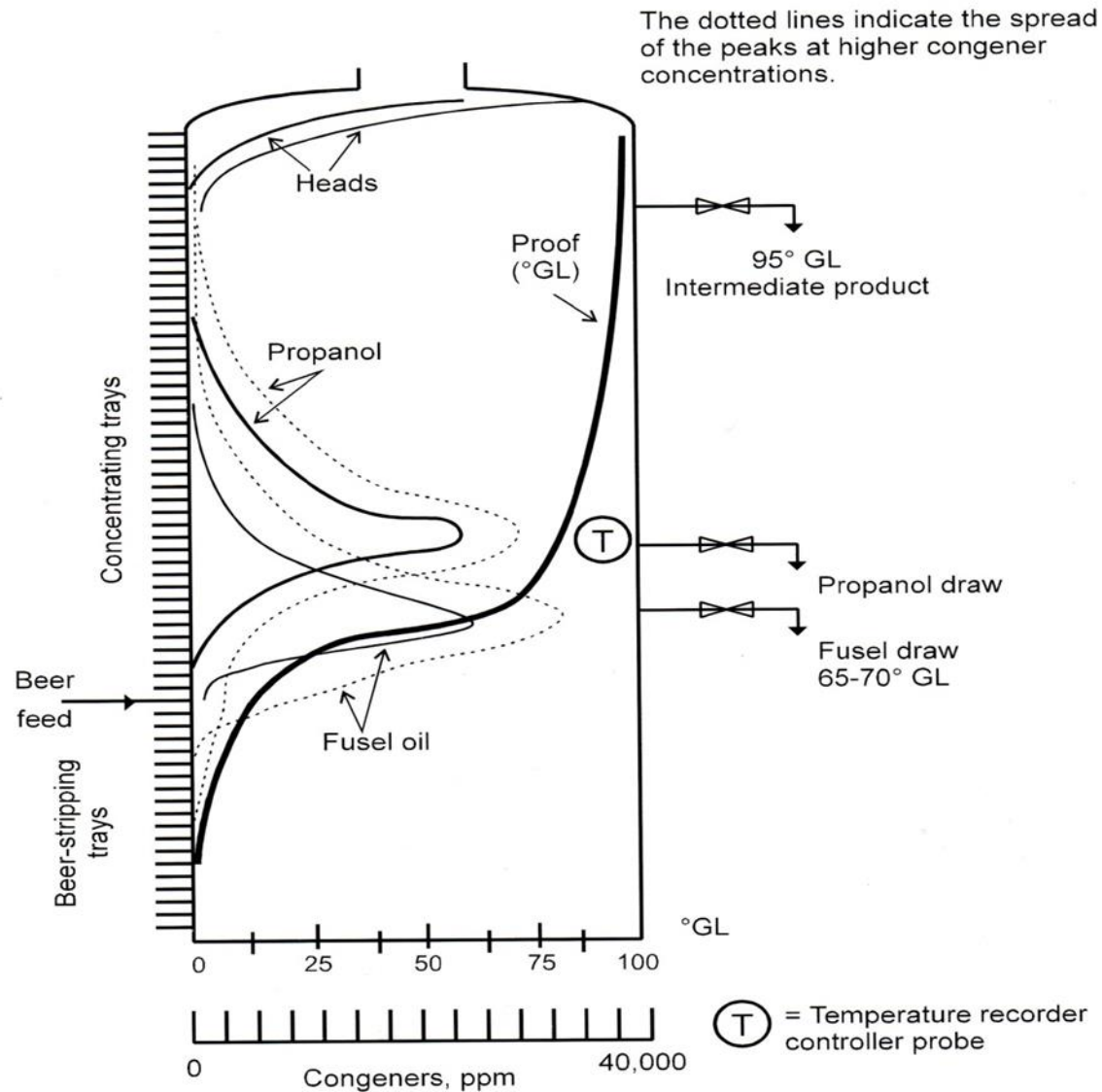
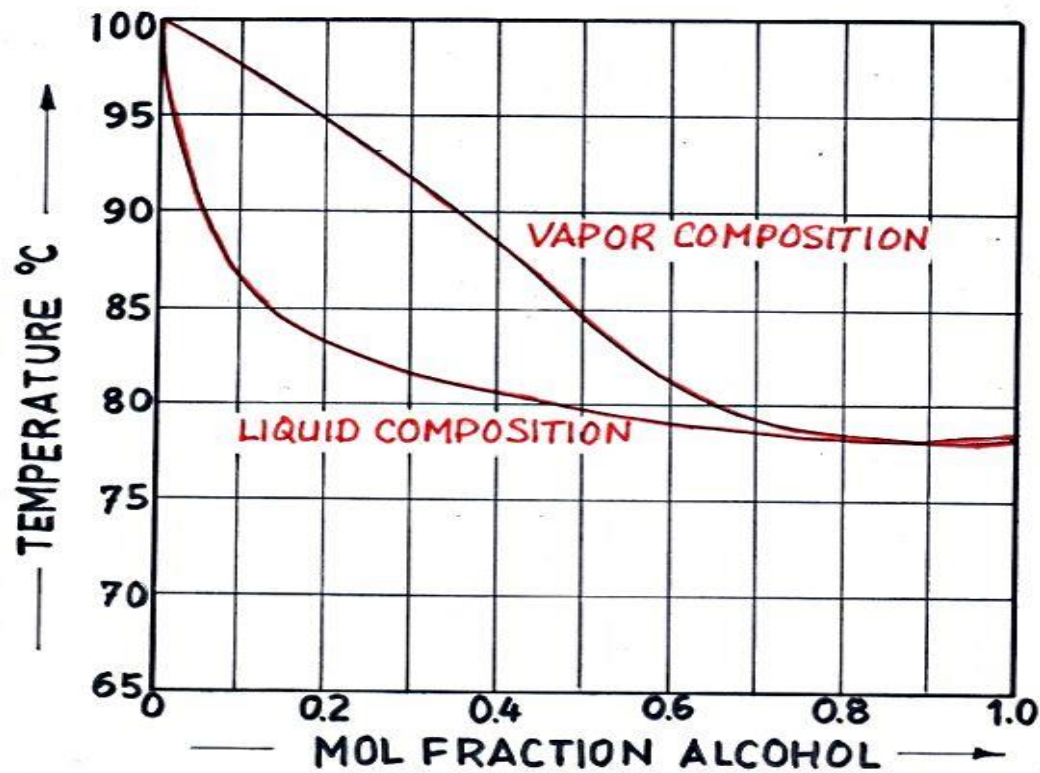


Figure 2. Congener peaks in a beer still with alcohol proof curve superimposed.



TEMPERATURE-COMPOSITION DIAGRAM
FOR ALCOHOL AND WATER

Pot Still

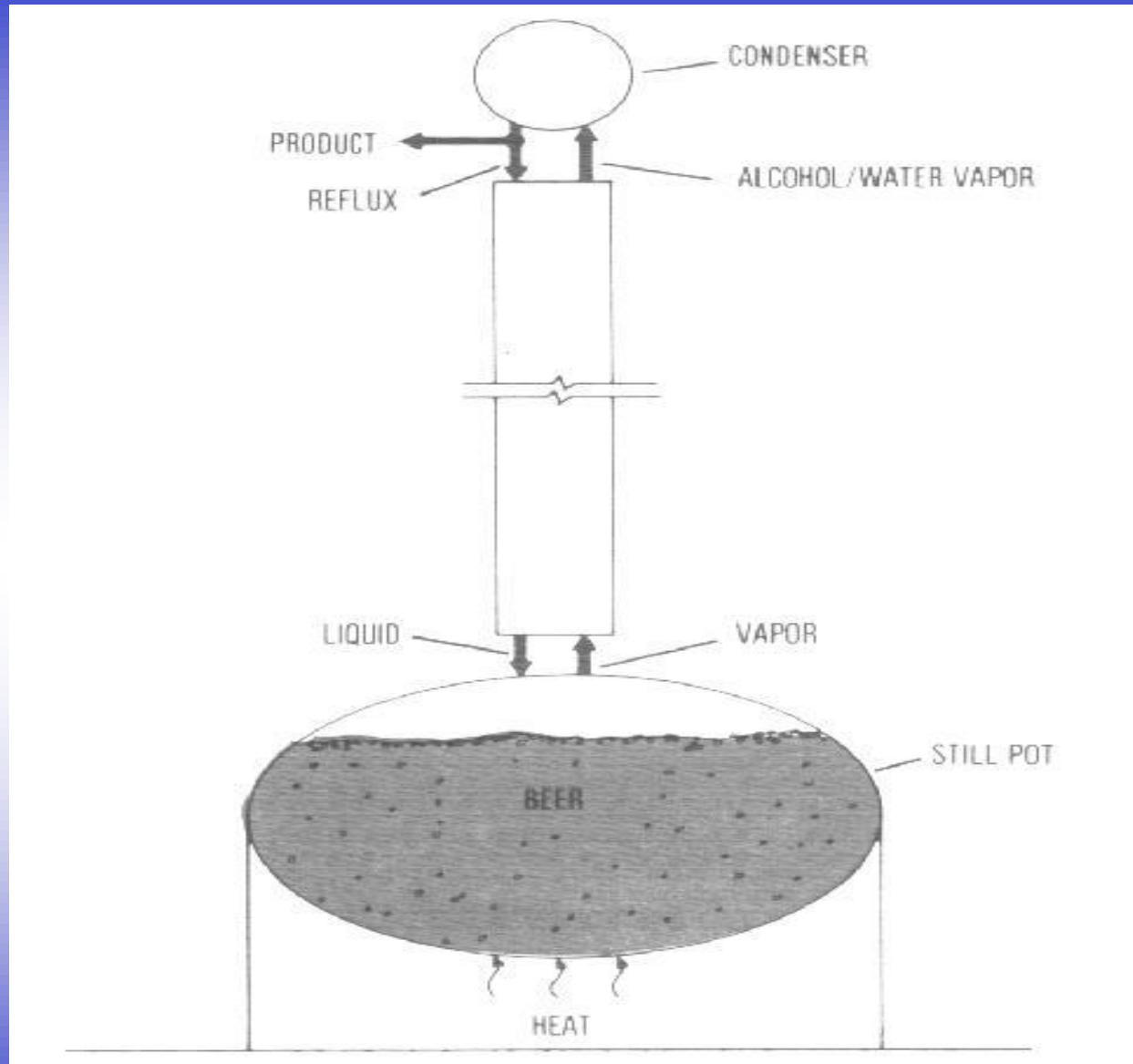
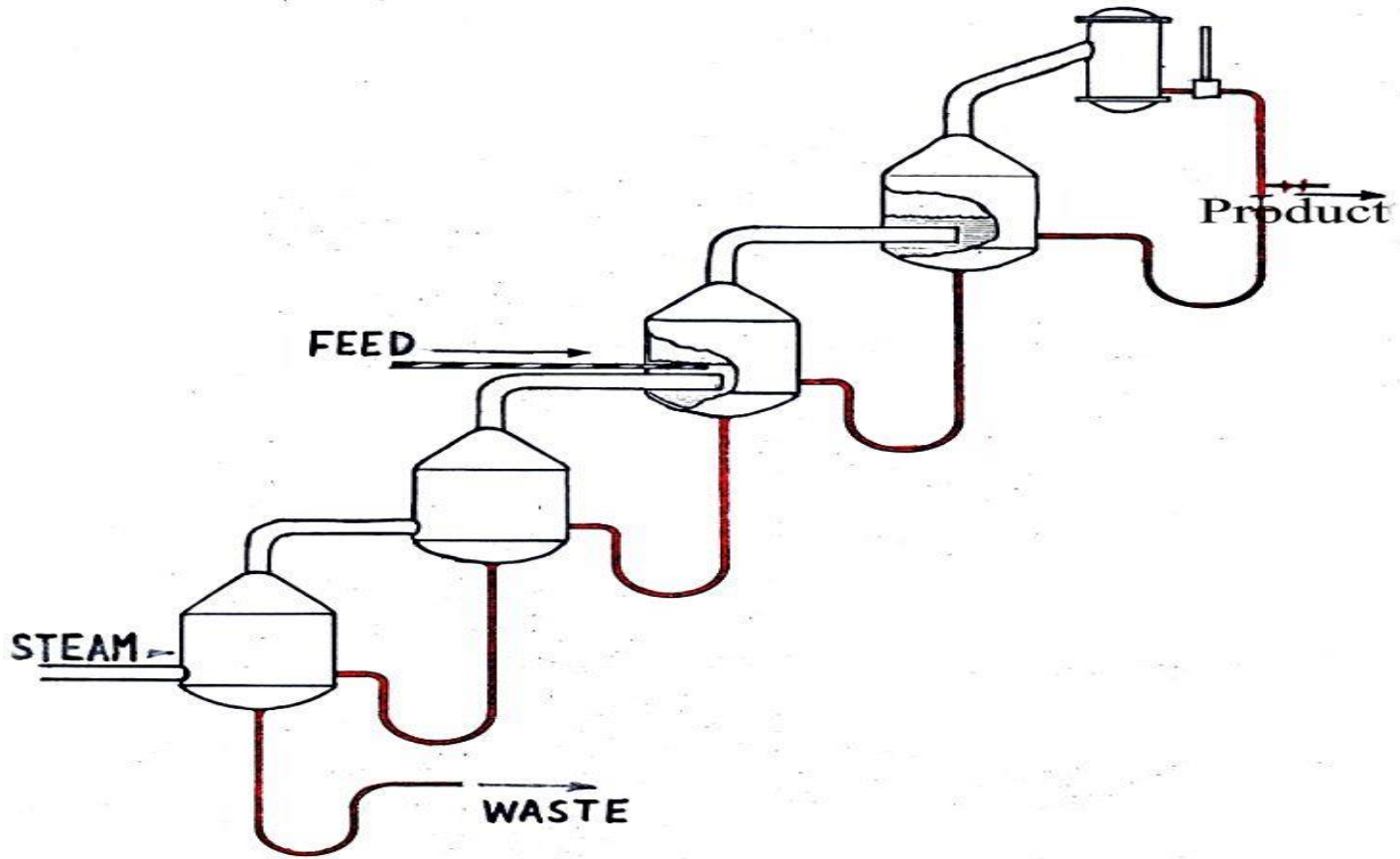
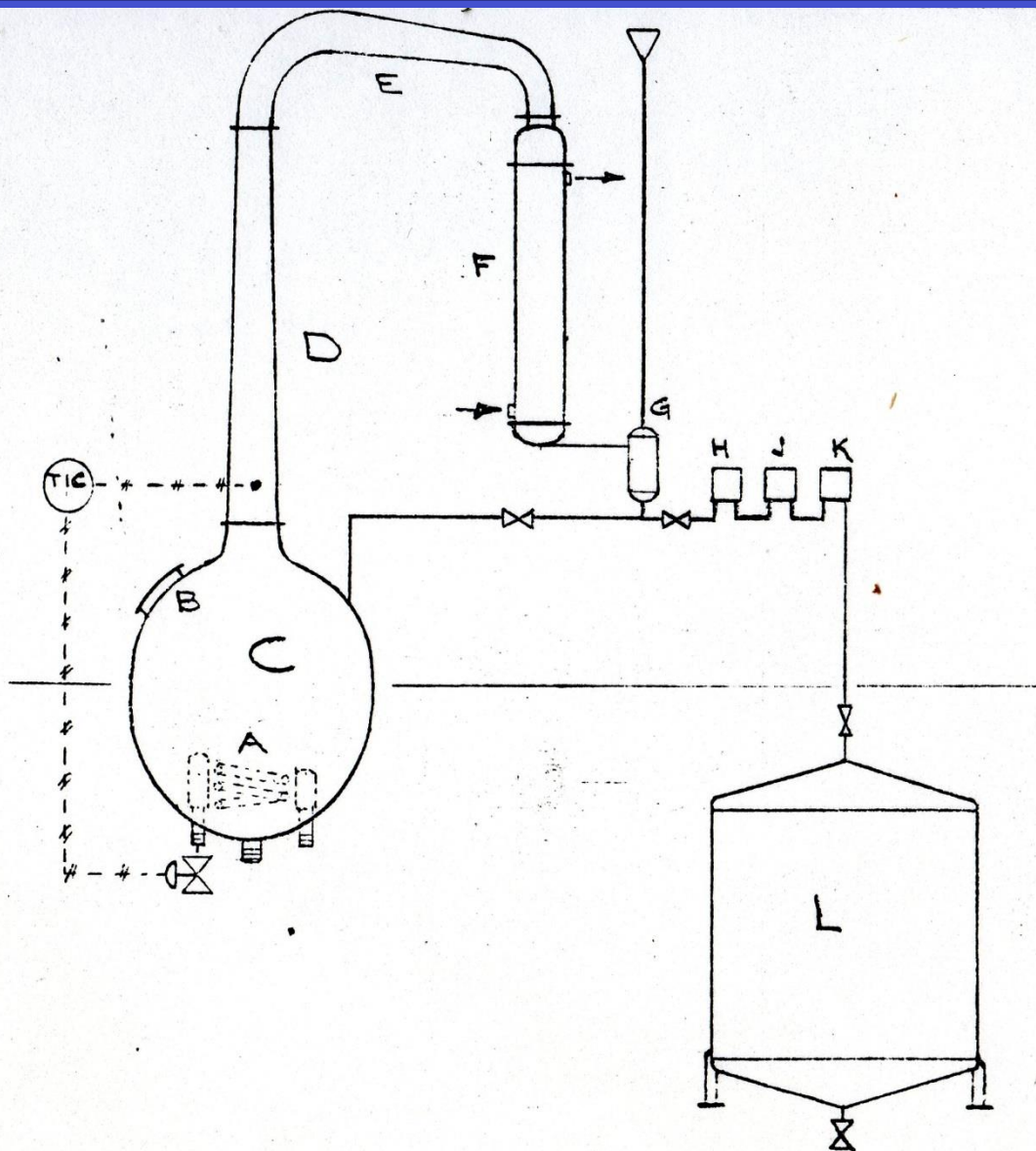


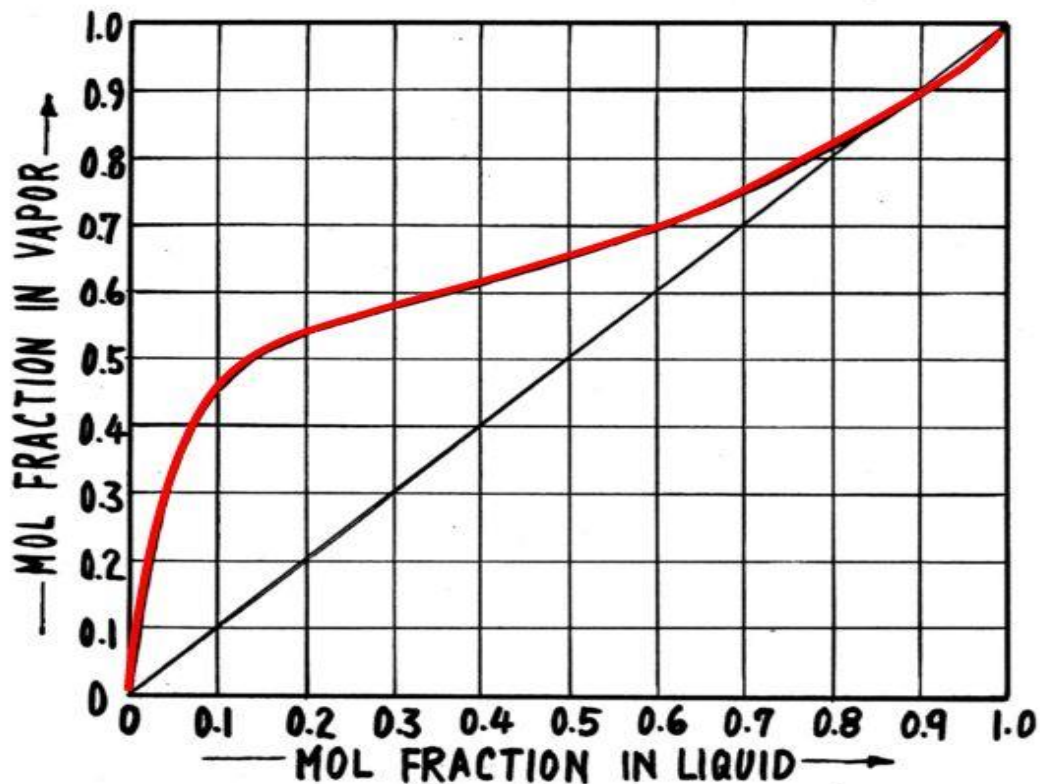
ILLUSTRATION # 15



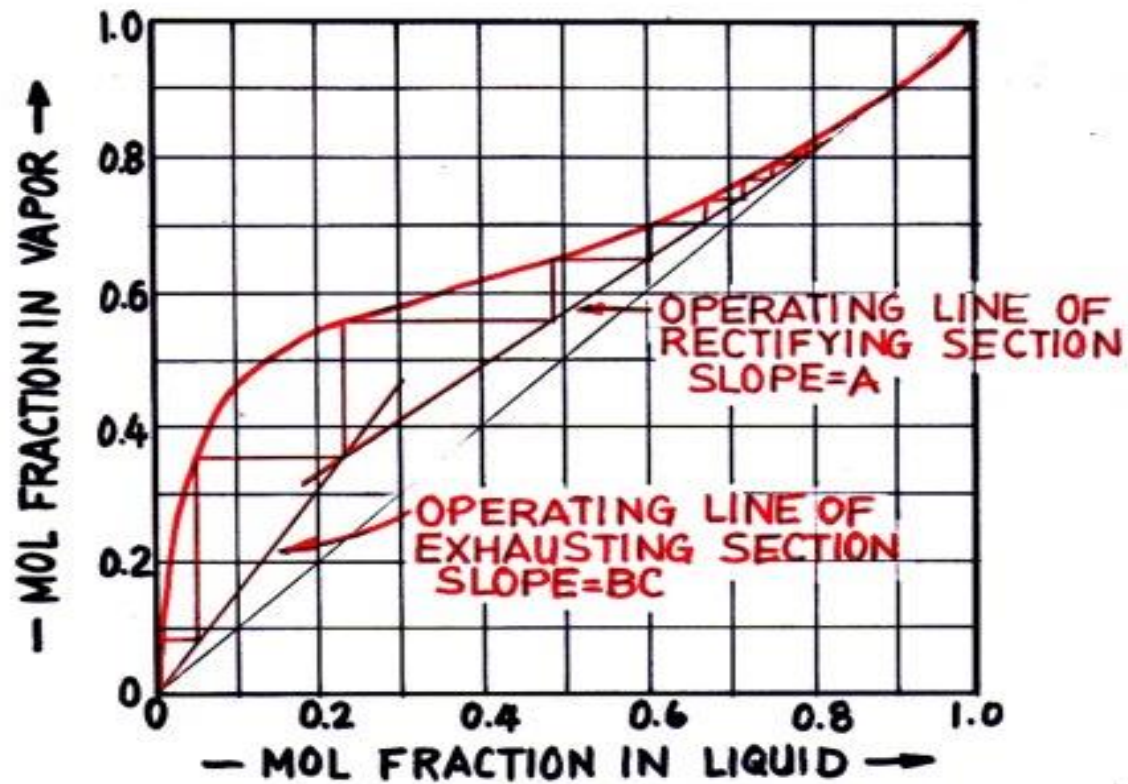
SERIES OF INTERCONNECTED POT STILLS



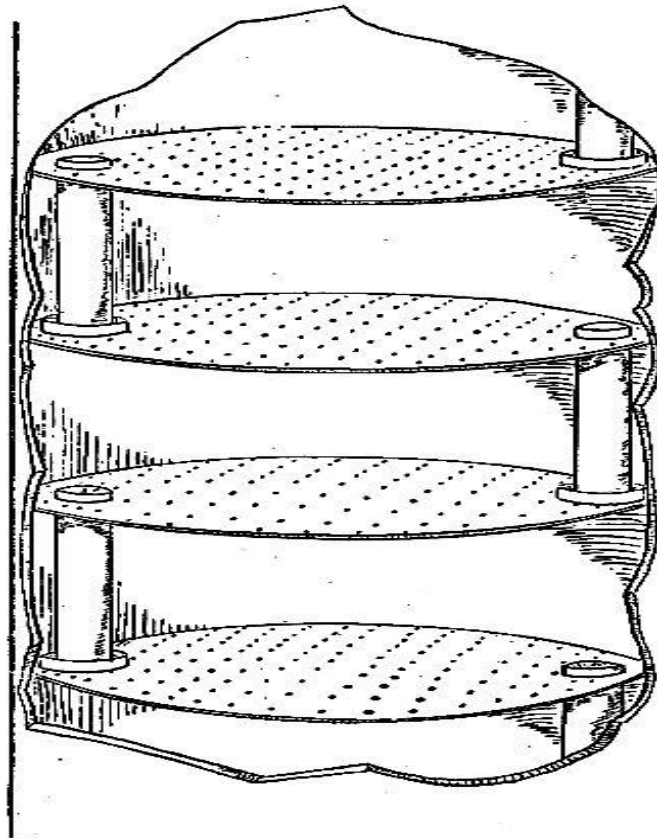
- A STEAM COILS
- B MANWAY
- C GIN POT STILL
- D LAY PIPE
- E VAPOUR ELBOW
- F CONDENSER
- G SEPARATOR & VENT
- H ROTAMETER
- I SPECIFIC GRAVITY INDICATOR
- J SAMPLER
- L SPIRIT TANK



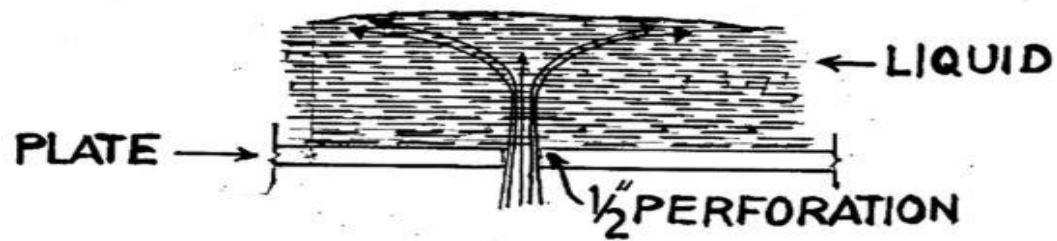
VAPOR-LIQUID COMPOSITION DIAGRAM
FOR ALCOHOL-WATER MIXTURES



McCABE-THEILE DIAGRAM

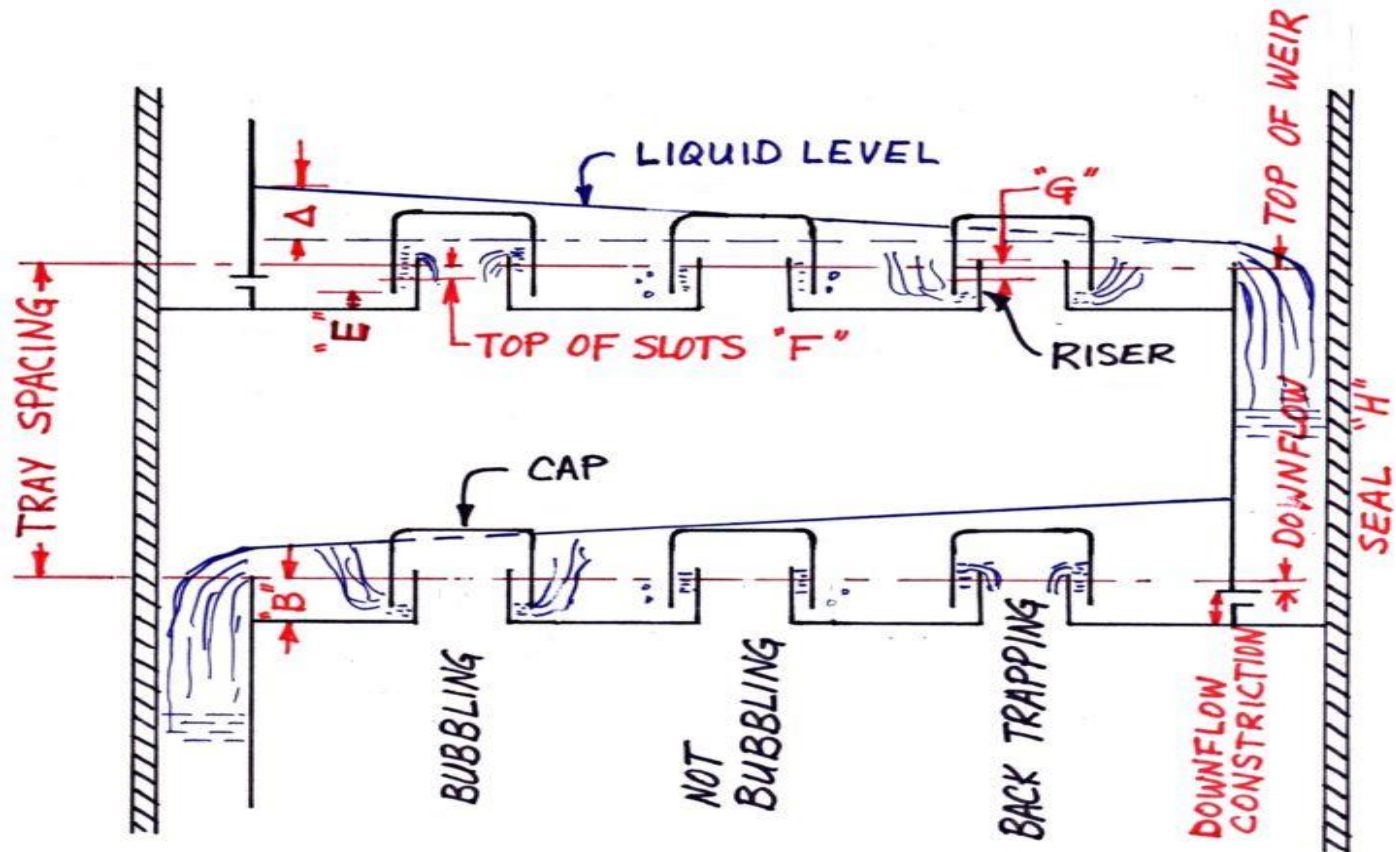


SECTION OF
COLUMN WITH PERFORATED PLATES



**CONTRACTION OF VAPORS AS
THEY PASS THROUGH A PERFORATION**





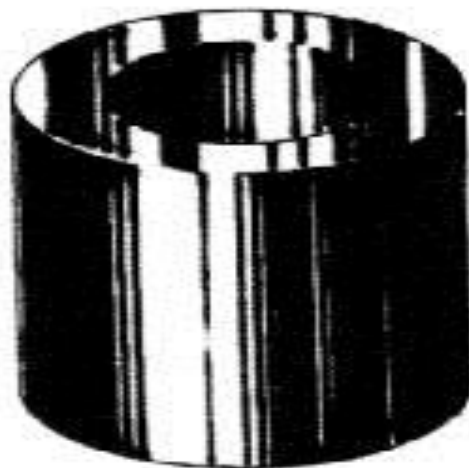
CROSS SECTION OF BUBBLE TOWER
WITH SINGLE CROSS-FLOW TRAYS



INTALOX SADDLE



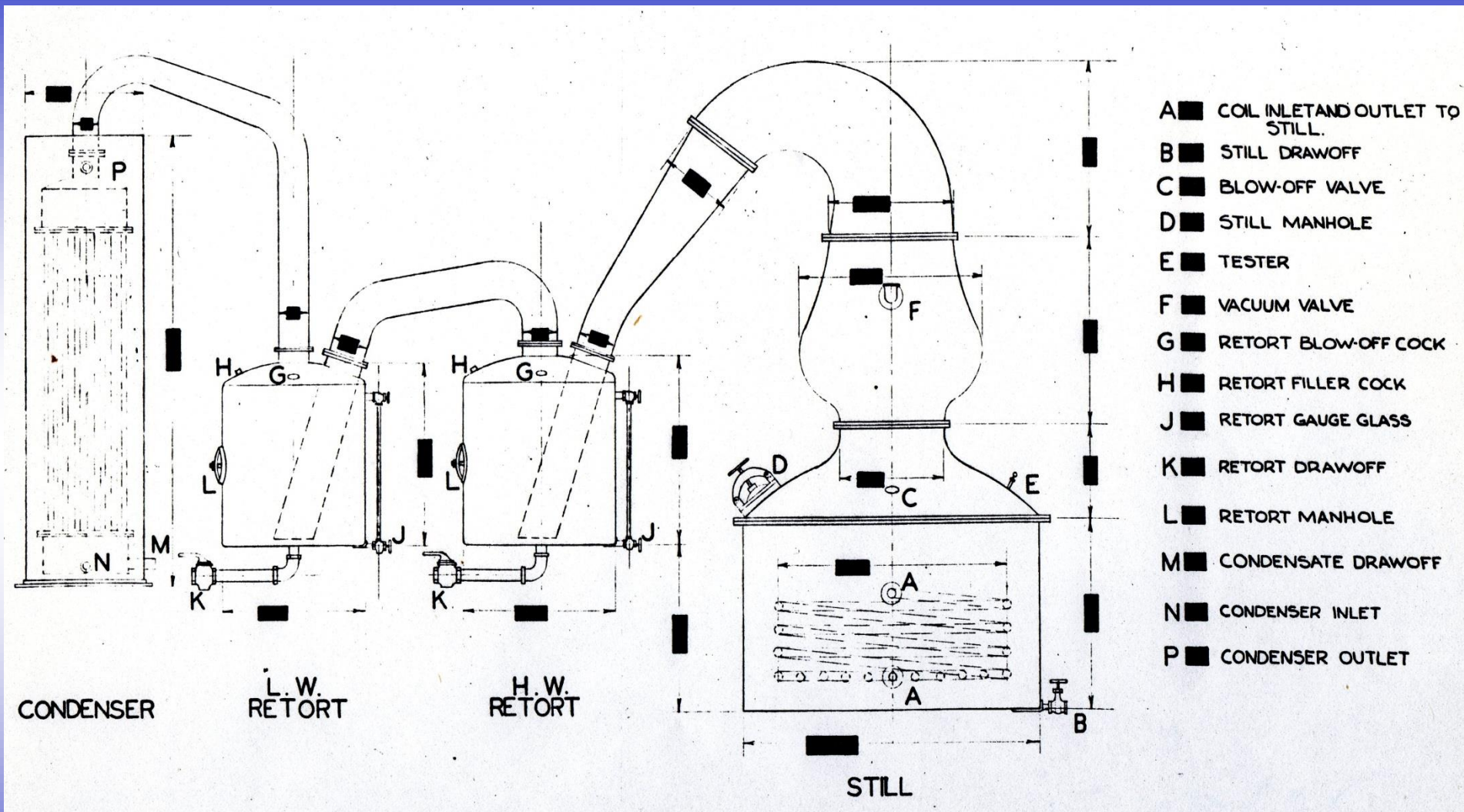
PALL RING

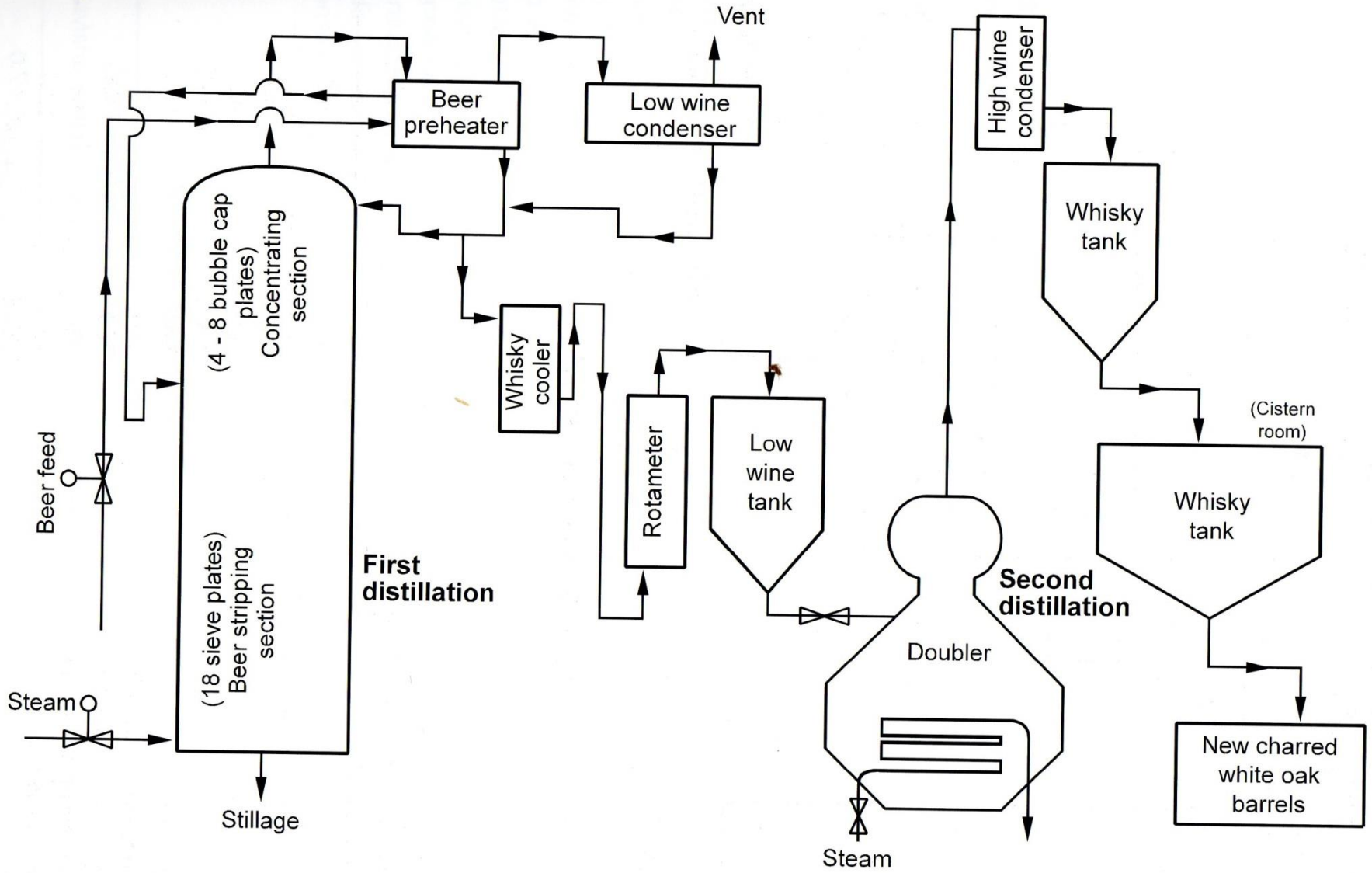


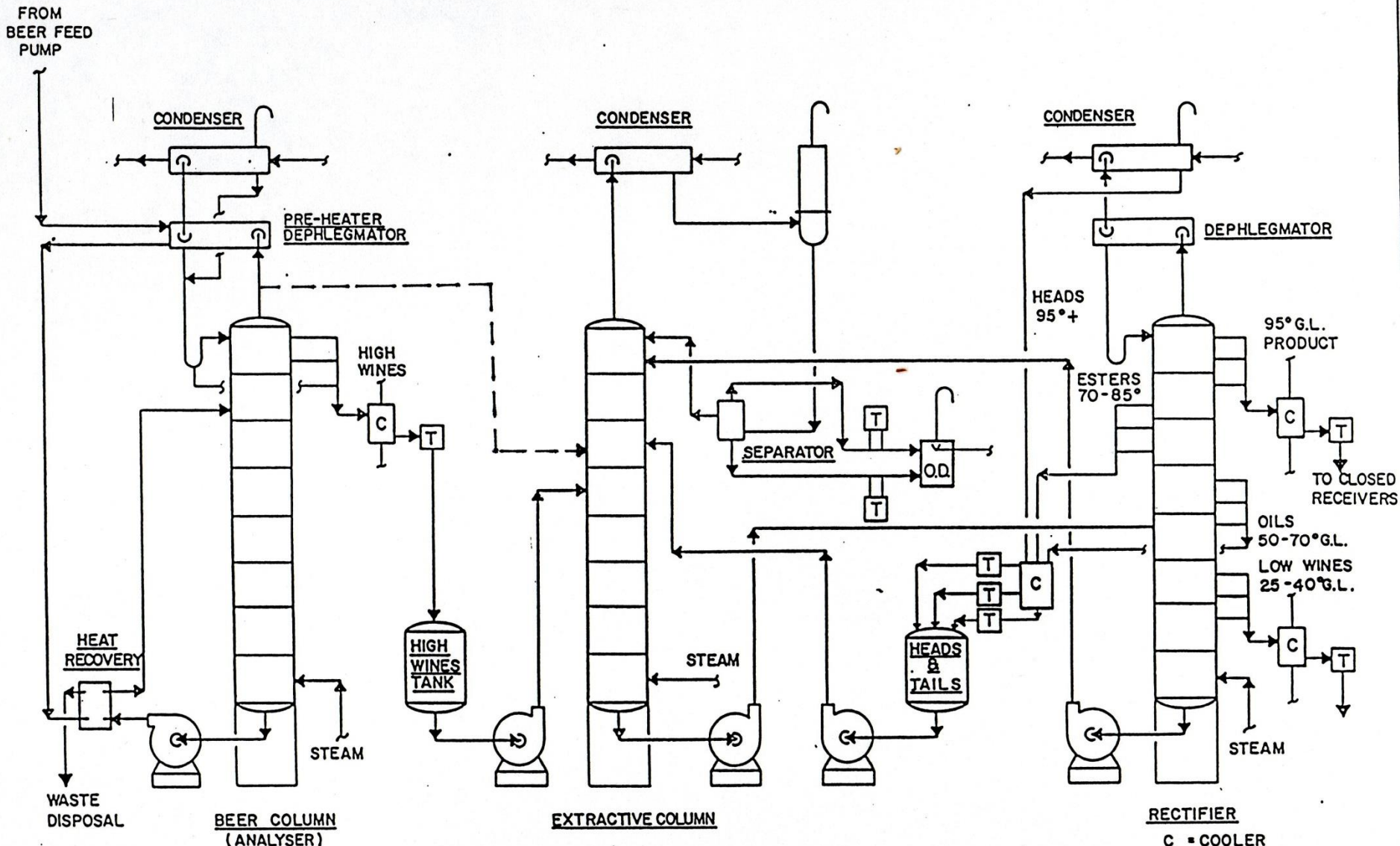
RASHIG RING



BERL SADDLE



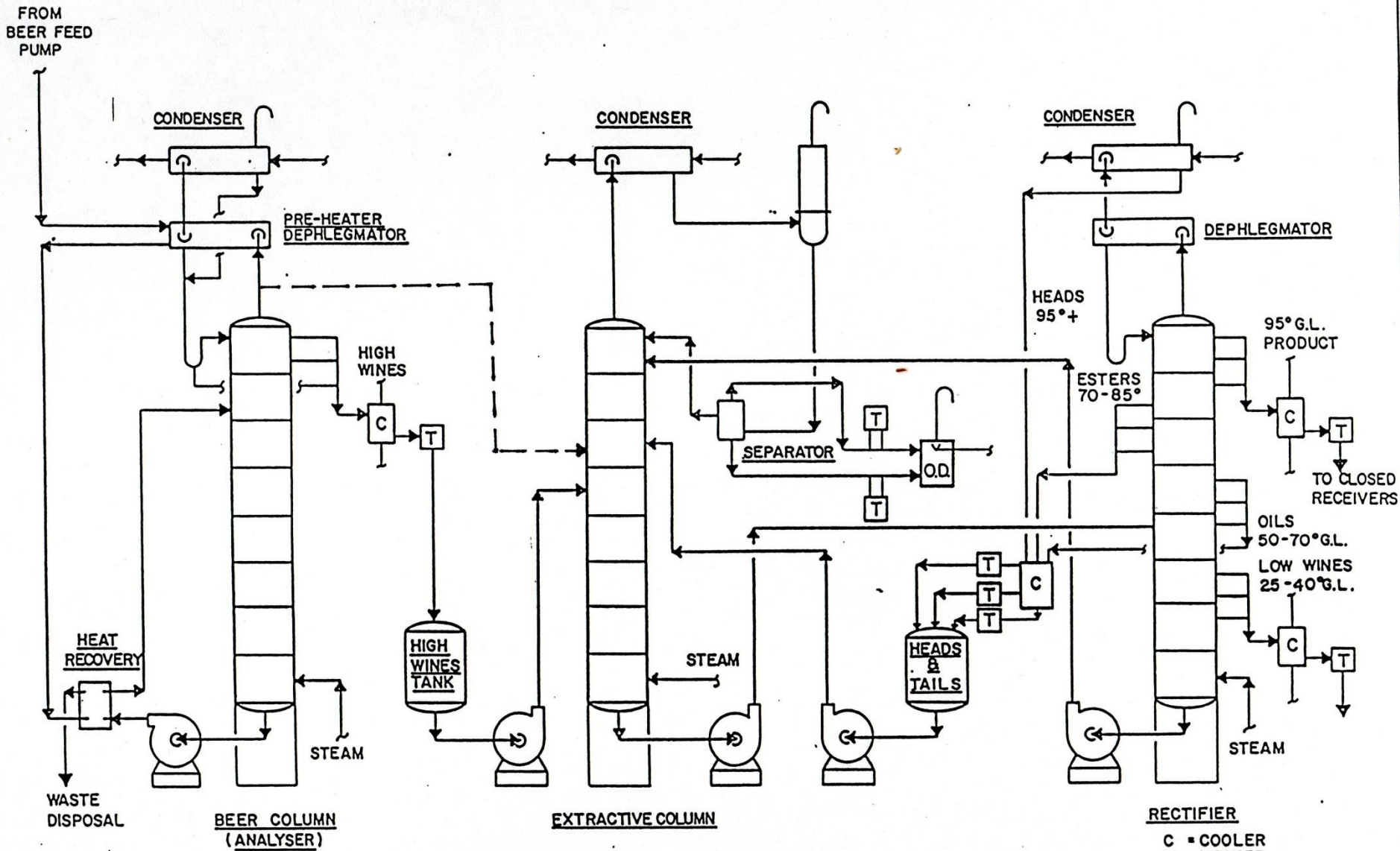




TYPICAL 3 COLUMN DISTILLATION SYSTEM.

(Valving, Controls, Utilities omitted for simplicity.)

C = COOLER
 T = TESTER
 OD = OILS DECANTER



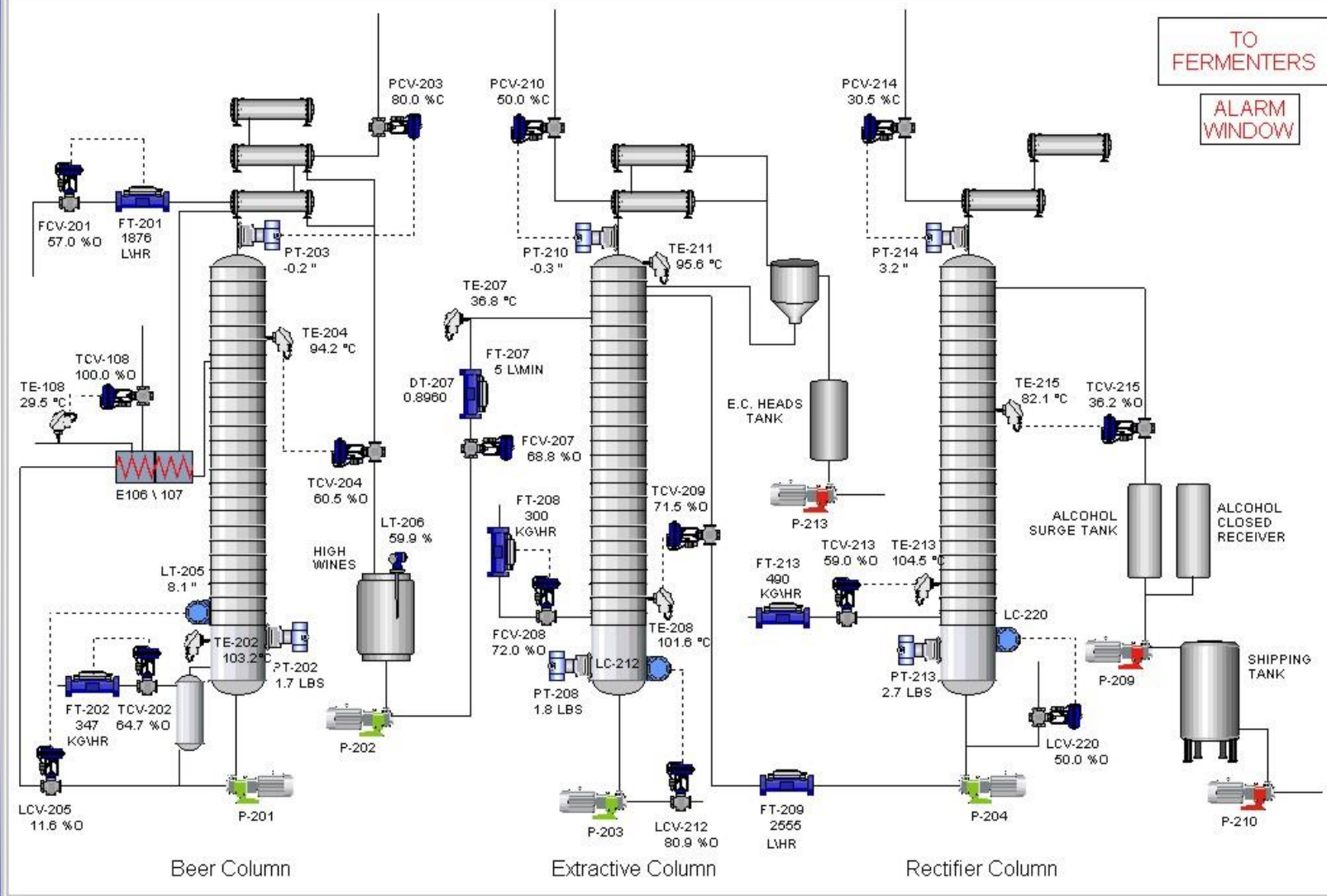
TYPICAL 3 COLUMN DISTILLATION SYSTEM.

(Valving, Controls, Utilities omitted for simplicity.)

C = COOLER
 T = TESTER
 OD = OILS DECANTER

File View Alarm Window Help

Still House



Flammability

Flammability [\[edit\]](#)

See also: *Alcohol proof*, *Flash point* and *Fire point*

Liquor that contains 40% ABV (80 US proof) will catch fire if heated to about 26 °C (79 °F) and if an ignition source is applied to it. (This is called its **flash point**.^[13] The flash point of **pure alcohol** is 16.6 °C (61.9 °F), less than average room temperature.^[14])

The flash points of alcohol concentrations from 10% ABV to 96% ABV are:^[15]

- 10% — 49 °C (120 °F) — ethanol-based water solution
- 12.5% — about 52 °C (126 °F) — wine^[16]
- 20% — 36 °C (97 °F) — **fortified wine**
- 30% — 29 °C (84 °F)
- 40% — 26 °C (79 °F) — typical vodka, whisky or brandy
- 50% — 24 °C (75 °F) — strong whisky
- 60% — 22 °C (72 °F) — normal **tsikoudia**(called mesoraki(middle raki))
- 70% — 21 °C (70 °F) — **absinthe**, **Slivovitz**
- 80% — 20 °C (68 °F)
- 90% or more — 17 °C (63 °F) — **neutral grain spirit**

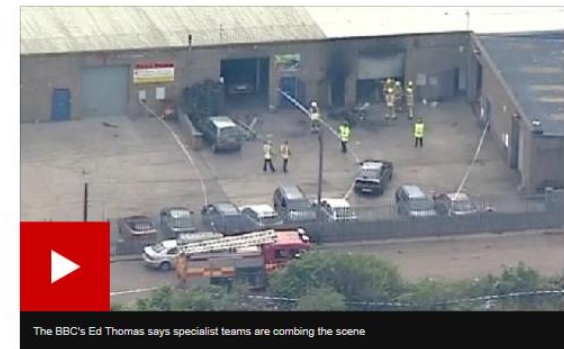
Beverages with low concentrations of alcohol will burn if sufficiently heated and an ignition source (such as an **elk** alcohol is about 52 °C (126 °F).^[16])



These flaming cocktails illustrate that a distilled beverage will readily catch fire and burn.

Signs of alcohol-making at Boston fatal explosion site

© 14 July 2011 | Lincolnshire



Chemicals found at an industrial unit in Lincolnshire where an explosion and fire killed five men indicate alcohol was being made there, police have said.



MATERIALS SAFETY DATA SHEET

(MSDS)

Ethanol (C₂H₅OH)

MSDS Number	NCP/P/1
Version number	Version 2.0
Date issued	3 rd May 2012
Next Review date	May 2014
Page No.	Page 1 of 9

COMPANY DETAILS

Name :	NCP Alcohols	Emergency telephone No.:	+27 (31) 579 2004
Address :	121 Sea Cow lake Road, Durban, 4001, South Africa	Telephone :	+27 (31) 560 1111
		Fax :	+27 (31) 579 2776

1. Product and Company Identification

(Page 1 may be used as an emergency safety data sheet)

Trade name :	Ethanol (Industrial, Absolute or Anhydrous, Rum, Light Spirits, Extra Neutral Potable, Neutral Potable, Rectified Extra Neutral and High Purity Extra Neutral Potable Alcohol)	Chemical abstract No. :	64-17-5
		Molecular Mass :	46.08
Chemical Family :	Aliphatic Alcohol	NIOSH No. :	100 6300000
Chemical name :	Ethanol	Hazchem code :	2(5) E; 3(5) E
Synonyms :	Ethyl Alcohol, See Trade name	UN No. :	1170

2. Composition:

Hazardous components :	Ethyl Alcohol (75.0 – 99.9% ¹ .)
EEC classification :	200 – 578 – 6 ¹¹
R Phrases :	R11 (Highly Flammable)

3. Hazards Identification:

Main Hazard	: Harmful if swallowed or inhaled. Possible aspiration hazard if swallowed (can enter lungs and cause damage). May be irritating to the skin, eyes and respiratory tract. Over exposure may cause CNS depression. Possible reproductive hazard.
Flammability	: Flash Point 12°C. Extremely flammable liquid (R11). Ignition temperature 425°C.
Chemical Hazard	: Ethanol is a flammable liquid whose vapours can form ignitable and explosive mixtures with air at normal room temperatures. Thus, an aqueous mixture containing 30% ethanol can produce a flammable mixture of vapour and air at 29°C, and even one containing only 5% alcohol can produce a flammable mixture at 62°C. ¹ Ethanol reacts vigorously with a wide range of oxidizing materials and other chemicals ² , e.g. Disulphuryl Difluoride, Silver Nitrate, Bromine Pentafluoride, Potassium Perchlorate, Nitroxy Perchlorate, Chromyl Chloride, Chloryl Perchlorate, Uranyl Perchlorate, Chromium Trioxide, Fluorine Nitrate, Dioxigen Difluoride, Uranium Hexafluoride, Iodine Heptafluoride, Tetrachlorosilane, Permanganic acid, Nitric acid (the nitric acid fizz reaction used formally for cleaning laboratory glassware should not be used ³), Hydrogen Peroxide, Peroxydisulphuric acid, Potassium Dioxide, Sodium Peroxide, Potassium Permanganate, Ruthenium (VIII) Oxide, Platinum, Potassium ⁶ , Potassium tert-Butoxide, Silver Oxide and Sodium ⁷ .



MATERIALS SAFETY DATA SHEET

(MSDS)

Ethanol (C₂H₅OH)

MSDS Number	NCP/P/1
Version number	Version 2.0
Date issued	3 rd May 2012
Next Review date	May 2014
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Product ingested : If victim is conscious, give 1-3 glasses of water or milk to dilute stomach contents. If spontaneous vomiting occurs, or when vomiting is induced, monitor for breathing difficulty. Do not make an unconscious or semi-conscious person vomit. Keep affected person warm at rest. Get medical attention for substantial ingestions and/or gastrointestinal symptoms.

Product inhaled : Remove the victim to fresh air. If not breathing, ensure open airway and institute cardiopulmonary resuscitation (CPR). If breathing is weak, irregular or has stopped apply artificial respiration. Oxygen may be beneficial. Keep affected person warm and at rest. Get immediate medical attention.

5. Fire – fighting Measures:

Extinguishing media : Use dry chemical, alcohol foam or carbon dioxide to extinguish fire. Water may be ineffective but should be used to cool fire-exposed containers, structures and to protect personnel. If leak or spill has not ignited, ventilate area and use water spray to disperse gas or vapour and to protect personnel attempting to stop a leak. Use water to dilute spills and to flush them away from sources of ignition. Do not flush down public sewers or other drainage systems.

Special hazards : Flammable
Flash point : 12 - 16°C
Flammability/explosion limits : 3, 3 – 19%¹/_v
Dangerous when exposed to heat or flame. Vapours form flammable or explosive mixtures with air at room temperature. Vapour or gas may spread to distant ignition sources and flash back. Run – off to sewer may cause fire or explosion hazard. Containers may explode in heat of fire. Vapours may concentrate in confined areas. Irritating or toxic substances may be emitted upon thermal decomposition.

Protective clothing : Exposed fire fighters should wear approved self-contained breathing apparatus with full face mask and full protective equipment.

6. Accidental Release Measures:

Personal precautions : Protective clothing should be worn to prevent excessive skin contact.

Environmental precautions : Prevent liquid entering sewers. Do not allow to enter surface waters, storm drains, etc.

Small spills : Take immediate steps to stop and contain the spill. Caution should be exercised regarding personnel safety and exposure to be spilled material. Eliminate all sources of ignition and wear protective clothing. Absorb small spills onto paper towels and evaporate in a safe place e.g. in a fume hood. Flush the contaminated area with plenty of water.

Large spills : Stop leak if you can do it without risk. Contact your local fire department. Eliminate all sources of ignition and static; restrict access to area until completion of clean-up procedure. Wear adequate protective equipment, use self-contained breathing apparatus in confined poorly-ventilated areas. Large quantities should be absorbed on to sand, vermiculite or an equivalent absorbent material and removed to a safe area for disposal. Flush the contaminated area with plenty of water. Incineration is the recommended method of disposal.

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Canadian Craft Distilling Institute, Hands-On workshop

A proud member of the BC Craft Distilling Association

Whether you are a connoisseur of craft distilled spirits seeking to further your knowledge or an entrepreneur wishing to start and operate your own Craft Distillery in Canada or the USA, the Urban Distilleries - Craft Distilling Workshops will teach you the art, science and business of Craft Distilling. The workshop comprises of 2 days of classroom and 3 days distillery floor, hands on distilling.

Urban Distilleries operates an Award-Winning Artisan craft distillery in Kelowna, B.C., Canada comprising one 600 litre Arnold Holstein still with full rectification capabilities as well as a 300 litre pot still. Urban Distilleries uses primarily B.C. grain and fruit ingredients to produce vodka, flavoured vodkas, gin, rum, eau de vie and whiskies.

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This workshop provides the most in-depth information, take home materials and hands on distilling than any USA based workshop/course. This course is centred around setting up and running Canadian craft distilleries and gives you all the necessary paperwork, calculations and rules in Canada.



Also, Contact Niagara College for their new Master Distiller training program, expected to begin in 2016