

23. *Authority of persons authorised by Licensee.*—(1) The agents, clerks and other persons who have been duly authorised in this behalf by the licensee and approved by the Manufactory Officer may enter into the manufactory and carry out their work in connection with the manufacture during the working hours of the manufactory.

(2) Any persons duly authorised in that behalf by the licensee may sign all applications and indents for the issue of spirit or potable liquor.

¹[24. *Instruction to be issued on supplementary matters.*—The Commissioner of Prohibition and Excise, Maharashtra State, Bombay, may issue written instructions providing for any supplementary matters arising out of these rules.

25. *Delegation of powers.*—The State Government may by an order in writing delegate all or any of its powers under the provisions of these rules to the Commissioner.]

FORM I

[See rules 3 (3) and 7(3)]

Licence for constructing and working a distillery for the manufacture of spirit.

Licence is hereby granted under and subject to the provisions of the Bombay Prohibition Act, 1949 (Bom XXV of 1949) (hereinafter referred to as “the said Act”) and the rules, regulations and orders made thereunder to of (hereinafter called “the licensee”). ²[on payment of a fee (inclusive of consideration) of Rs. authorising him to construct and work a distillery in building known as situated in the District of (hereinafter referred to as “the distillery”) and to manufacture thereat spirit from molasses*/mhowra flowers* †subject to the following conditions, namely :—

1. This licence shall remain in force for a period of years(s) commencing on and ending on(both days inclusive.)

2. (1) The licensee shall carry out all the operations connected with the manufacture, storage and issue of spirit at the distillery under excise supervision.

(2) In addition to the fee mentioned above, the licensee shall pay ³[quarterly] in advance such charges as the Government of Maharashtra (hereinafter referred to as “Government”) may, from time to time, fix in this behalf towards the costs on account of salary, dearness allowance, compensatory allowance and other charges, namely contingent expenditure, if any, and the leave and pension charges of such Prohibition and Excise staff as the Commissioner of Prohibition and Excise (hereinafter referred to as “Commissioner”) may think it necessary to employ for the purpose of supervising the operations of manufacture, storage and issues of spirit by the licensee.

³(3) The distillery shall not be kept open except during the factory hours on normal factory working days. The excise supervisory staff posted at the distillery shall not be entitled for a public holiday if it is not a factory holiday, nor will that staff be eligible for any overtime allowance for the work done on such public holiday if it is not a factory holiday. On any emergent occasion, the licensee may, with the previous written permission of the Commissioner, keep the distillery open on any factory holiday. In such cases, the licensee shall pay to the State Government over-time charges at the rates prescribed by the Commissioner from time to time.]

1. Added by G. N. of 18.5.1974.

2. Subs. by G.N. of 6.11.1981.

3. Subs by G.N. of 18-5-1974.

* Delete whichever is inapplicable.

† Here specify and other article from which licensee is allowed to manufacture spirit.

3. The licensee shall to the satisfaction of the Commissioner provide suitable quarters for the residential accommodation of the Prohibition and Excise staff employed under condition 2 in the close vicinity of the Distillery. If the licensee is not able to provide residential accommodation to the members of such staff, the Commissioner shall be entitled to take on hire or otherwise secure suitable accommodation for the said staff the rent to be charged to the member shall be the economic rent or 10 per cent. of the basic pay of the member concerned, whichever is less. If the economic rent of the quarters is more than 10 per cent. of the basic pay of the member, the licensee shall pay the excess over 10 per cent. provided that in no case the licensee will be liable to pay more than the difference between 10 per cent. and 35 per cent. of the basic pay of the member. If the economic rent is more than 35 per cent. of the basic pay of the member, then the member shall pay 10 per cent. and the licensee shall pay 25 per cent. and the member shall pay the excess over 35 per cent. If the licensee is not willing to pay it.

4. The licensee shall fix a sign-board of the minimum size of 1.25 metres in length and 0.5 metre in width bearing the name of the distillery and of the warehouse in large block letters at the entrance of the distillery and each warehouse.

5. The licensee shall provide the distillery with a main gate through which employees shall enter and leave the distillery :

Provided, that if the licensee opens a second gate for the employees to enter and leave, the licensee shall pay the cost of the additional staff required to guard the additional gate.

6. The licensee shall not start manufacturing operations at the distillery until the Prohibition and Excise staff referred to in condition 2 is posted at the distillery.

7. (1) The licensee shall maintain at the distillery a register containing the names of the manager and of other employees and labourers working thereat.

(2) The licensee shall on demand by the Distillery Officer, show him the register maintained under clause (1).

8. (1) The licensee shall provide each labourer holding a permanent employment a square badge bearing a consecutive number and the name of the distillery ; and each labourer holding a temporary employment, a round badge, similarly numbered.

(2) The badges granted to the labourers shall, while they are within the distillery, be either in their own possession or in that of a representative of the licensee.

(3) The licensee shall issue instructions to the labourers to show their badges to the Prohibition and Excise guards on duty at the gate while entering and leaving the distillery.

(4) No person whose name is not on the register of employees and who has not been provided with a badge shall be admitted into the distillery.

9. (1) The licensee shall provide in the distillery such measures and utensils, stills, receivers, saccharo-meters, weighing scales, weights, guage rods, testing instruments and other apparatus as may be required by the Commissioner in that behalf.

(2) The licensee shall number the utensils, stills and receivers in the distillery consecutively and shall mark on them their respective capacities legibly in oil paint in English and in Marathi.

(3) The licensee shall arrange the stills, pipes and utensils in such manner as may be approved by the Commissioner or by any Prohibition Officer authorised by him in this behalf.

(4) The licensee shall have all his vats and tanks in the distillery painted.

(5) Each vat shall be gauged so as to show its depth at every centimetre and 2 millimetres and shall be provided with a gauge rod and a discharge cock having an internal diameter of two and a half centimetres or of any other size approved by the Commissioner.

(6) The licensee shall supply all necessary fittings or articles required at the distillery at his own expense.

(10) (1) The licensee shall provide and keep burning at the distillery from nightfall till dawn such lights as may be required by the Commissioner.

(2) The licensee shall maintain in good order at the distillery a portable electric safety lamp.

(3) The licensee shall not allow unprotected lights to be used in vats or stills. It is found necessary to use artificial light in the vicinity of alcohol vapour or under dangerous conditions, the licensee shall use only an electric safety lamp of a design approved by the Commissioner in this behalf.

(4) When an electric lamp issued in the distillery or a spirit warehouse it shall not be switched on or off in the presence of spirit vapour or other inflammable gases. Switches shall always be kept outside the spirit store room.

11. (1) The licensee shall provide a separate room in the distillery for the storage of spirit (hereinafter called "the store-room") in which nothing except spirit vats and their accessories shall be stored and into which no naked light shall be brought.

(2) The licensee shall not store spirit in casks or drums used for transport but shall put it into a storage vat(s) or tank(s) of not less than two months production of spirit at the distillery.

12. Each door of the distillery and store-room shall bear an excise revenue lock the keys of which shall remain with the Distillery Officer.

13. The licensee shall carry out within a reasonable period and subject to the availability of the necessary materials, such additions and alterations in the distillery premises and plant as are deemed essential by the Commissioner.

14. (1) The licensee shall not erect or use additional plant or building or alter the situation of any plant or the capacity of any still or utensils without first obtaining the permission in writing of the Commissioner.

(2) if the licensee alters any gauged utensils shall not use such altered utensils unless they are re-gauged.

(3) The licensee may carry out any urgent repairs to any plant, still or utensils after giving written intimation of the nature of the repairs to the Distillery Officer.

15. The licensee shall not manufacture spirit at any place other than the distillery; the distillery and the store-room shall be open at all times for inspection of the Commissioner or any Prohibition Officer empowered by him in this behalf.

16. (1) The licensee shall not mix with spirit any ingredient injurious to health or in any way objectionable in character.

(2) The licensee shall permit samples upto half a litre of any spirit or any other liquid article of half a kilo of any solid article used for manufacturing spirit in his distillery to be taken, for analysis free of cost by the Distillery Officer or by the Commissioner or any Prohibition Officer authorised by him in this behalf; and shall, if so required, pack such samples at his own expense.

(3) If on analysis of the sample, any defects are found in the spirit, the licensee shall take such steps as the commissioner may consider necessary to cure the defects.

(4) The licensee shall, on application, be entitled to a copy of the report of the analysis of such samples.

17. (1) The licensee shall not manufacture spirit in such manner as is in the opinion of the Distillery Officer likely to cause injury to life or property or to cause any nuisance on or about the distillery, and he shall obey all orders given by the Distillery Officer in this behalf.

(2) The licensee shall keep all drains leading from the distillery, clean and in good condition and shall cause all refuse to be promptly removed there from.

18. The licensee shall give to the Distillery Officer at least one hour's notice of his intention (a) to remove any wash to the still, or (b) to remove any spirit from a receiver to a vat or still;

Provided that, in case of any emergency such as choking of valves or pipes of the wash back under operation, the licensee may remove the wash to the still without giving an hour's notice, but he shall immediately inform in writing the Distillery Officer of such removal.

19. (1) The licensee may supply spirit manufactured by him to any industrial concern or person or institution holding licence or permit for the possession and use or sale of the spirit as the case may be, and which or who is permitted by the Collector to obtain its or his requirements of spirit from the distillery of the licensee.

(2) The licensee may, with the previous permission of the Commissioner, use the spirit manufactured by him in the bonded laboratory or manufactory owned by him for the manufacture of spirituous medicinal or toilet preparations or chemicals or potable liquor, as the case may be.

(3) The licensee shall, with the permission of the Commissioner denature all the spirit not required for supply to any industrial concern or person or institution or for use in the bonded laboratory of the licensee, before it is disposed of. The denaturation of spirit issued from the distillery shall be governed by the rules, regulations and orders made in that behalf.

(4) No spirit shall be issued from the distillery except for the purpose mentioned in clause (1) of this condition and except under the cover of the transport pass issued by the Prohibition and Excise Officer empowered in this behalf.

(5) No issue of spirit under bond (i.e. without payment of duty) or on payment of duty shall be made, unless their details are shown respectively in registers in Appendices A and B to this licence which shall be maintained by the licensee and the Distillery Officer and without cover of transport pass.

(6) Where issues of spirit are made by weighment, the particulars of weighment shall be entered in a register in Appendix C to this licence which shall be maintained by the licensee and the Distillery Officer.

(7) The supply of spirit made from the distillery for purposes shown in clauses (1), (2) and (3) of the issues of spirit under bond referred to in clause, (5) shall be governed by (1) the Bombay Rectified Spirit Rules, 1951, (2) the Bombay Rectified Spirit (Transport in Bond) Rules, 1951 and (3) the Medicinal and Toilet Preparations (Excise Duties) Rules, 1956, as the case may be.

20. The licensee shall issue spirit from the distillery by the units of recognised commercial measures of litres and millilitres, duly verified and stamped under the provisions of the Bombay Weights and Measures (Enforcement) Rules, 1958.

21. If the Commissioner considers that any losses of spirit in excess of the limits permitted by him are not satisfactorily explained by the licensee, the licensee shall pay excise duty on such losses at such rate as may, for the time being, be in force :

Provided that, no such duty shall be payable on the quantity of spirit lost which the Commissioner may, from time to time, allow to be written off.

22. (1) Except with the written permission of the Commissioner, the licensee shall not use in the manufacture of spirit any article other than molasses/mhowra flowers.

(2) The licensee shall keep in Appendix D a daily account of the molasses or mhowra flowers or of both or any other article received by him and permitted to be used as base for the manufacture of spirit, and submit a monthly extract thereof to the Distillery Officer by the third of the month next following.

(3) The licensee shall also keep such accounts and registers of the operation at the distillery and furnish such returns as may be prescribed by the State Government in this behalf.

(4) The accounts shall be produced for inspection whenever required by the Commissioner or any Prohibition Officer empowered by him in this behalf.

23. The licensee shall send to the Commissioner not later than the third day of each month an account of the spirit for the previous month in such form as may be prescribed by the State Government from time to time. The licensee shall also furnish information regarding the exercise of the privilege granted by this licence in such form as may, from time to time, be prescribed by the State Government.

24. The licensee shall maintain Daily Run Reports in accordance with the *proforma* set out in Parts A to D in Section II of a Appendix E to this licence, or in any other suitable or convenient form, in order to check the efficiency data maintained in Part E under Section II aforesaid from the date the report is so maintained, and prepare efficiency data in accordance with Part E or in such other manner as may, from time to time, be prescribed. He shall submit, every month, by the 7th instant of the month following the month to which it relates, a copy of the efficiency data to the Industries Commissioner, Maharashtra State, or any officer nominated by him in this behalf. The licensee shall furnish every information regarding his distillery and maintain such records as the Industries Commissioner, Maharashtra State, or any officer nominated by him may consider necessary for the technical control over the working of the distilleries.

25. The licensee shall follow the instructions given in the Schedule appended to this licence with a view to obviating the occurrence of accidents at the distillery and its attached warehouses.

(d) On each of the two days subsequent to the abovesaid first two days, *i.e.*, on each of the last two days of the abovesaid total of four days immediately preceding entry of the vat or any receptacle by any person, water shall be discharged on the sides of the vat either by means of bucket or a hose, care being taken to see that the sides, top to bottom, are washed in process.

(e) During compliance with the provisions of clause (d), if there has to be any partial entry of a vat through the man-hole, by the insertion through the man-hole of (for example) the head and shoulders of the man carrying on the cleaning process or by the man in question descending a rung or two of a ladder in order to see that the washing process of the top and sides is done properly, such entry shall be the bare minimum necessary; and more over during such compliance there shall be constantly on the top of the vat with the man carrying out the cleaning process a companion; and lastly to the man carrying out the cleaning process in accordance with clause (d), there shall be securely attached, for all the time that he is engaged on that work, a "safety line" or rope which will in fact be one of the same safety lines or ropes that are prescribed to be kept in the distillery or warehouse continuously ready to hand under clause (b) of sub-rule (2).

(f) At a distillery before any person enters a vat a lighted safety electric lamp shall be suspended in the vat.

(g) On the occasion on which a vat is entered after it has contained spirit, only one person shall enter the vat in the first instance and no other shall follow, until after an interval of at least five minutes.

(h) No person shall enter a vat unless another is stationed at the top of the vat at the mandoor and the first person who enters a vat is securely attached to a rope one end of which shall be held by the person stationed at the top of the vat until it is ascertained that there is no danger to the person in the vat when the rope may be removed.

(i) All vats and other spirit vessels of an internal height of 1.75 metres or over shall be provided with a manhole at least 0.75 metre in diameter or, if rectangular, at least 0.75×0.60 metres and vats and other like vessels or less internal height than 1.75 metres shall have manholes which will conveniently permit of ingress and egress. Manhole covers should project at least 4.5 cm. beyond the sides of the hole and should have fixed to their undersides a rim which shall fit against the sides of the hold and keep the cover in position.

(j) Before any person enters a vat or other spirit receptacle of 1.75 metres internal height or over a ladder which can be conveniently ascended and descended should be placed in the vat.

(2) The licensee shall also take the following additional safeguards, namely :—

(a) A sufficient number of wooden grills shall be provided at the distillery or warehouse for being placed over the manholes of the empty vats, whenever they are required to be kept open for the purpose of clause (c) of sub-rule (1). The dimensions of the grills should be larger than those of the manholes, and the grills should be provided with locking arrangements on one side and two opposite sides, so that the grills may not be displaced from their proper places. Each grill shall be sufficiently strong to sustain the weight of any person who may happen to step on it while crossing to the top of another vat. When sufficiently strong wooden grills cannot be had, grills made of iron may be obtained. When in use the grills shall be fastened to the vat by means of locks on one side or both sides. The locks applied to the grills shall bear the labels showing the date and time of locking the grills.

(b) Every distillery or warehouse shall keep handy two or three pieces of strong cotton or Manilla rope of sufficient length for use as required by clauses (c) and (h) of sub-rule (1).

(c) The operations of cleaning vats shall be carried out under the supervision of the Distillery Officer. The operations may be carried on in the presence of the distillery Officer under the supervision of a responsible person in the employ of the licensee.

(d) A memorandum as hereinafter set forth containing the directions as to what should be done before and after entering a vat, shall be translated into Marathi and a copy thereof shown to members of the establishments working at the distillery and their signatures or thumb impressions taken in token of having read and understood it. A copy of the directions aforesaid together with the memorandum shall also be hung up in a conspicuous place in the distillery.

Memorandum of Directions

I. Do not enter any vat or tank unless—

(a) It has been emptied of spirit at least four days before the day on which any person is asked to enter it; and the man-door and discharge cock have continuously remained opened during that period.

(b) During the last two of the said four days immediately preceding the day on which a person is to be asked to enter it, water is discharged on the sides of the vat or tank by means of a bucket or a hose and the sides from top to bottom have been washed in the process.

(c) It has been filled full with water and has remained in the condition for at least twenty-four hours.

II. Before entering the vat or tank see that—

(a) a ladder which can conveniently be used for getting in or getting out is placed in the vat, which has a height more than the normal height of a man, and if it is a small vat, a stool of convenient size is placed just below the man-door ;

(b) a rope is securely attached to the body of the person entering the vat;

(c) another person is stationed on the top of the vat at the man-door who shall hold the other end of the rope after entry until the person has been in the vat for about five minutes and informs such another person that there is no danger to him while inside the vat.

III. After entering the vat or tank—

(a) When a person is satisfied that there is no danger to him as aforesaid, the person who has so entered the vat or tank may remove the rope, but the person stationed at the man-door shall remain there, until the person who has entered has finished the work ; and

(b) do not allow anyone else to come inside the vat or tank until the person who has first entered the vat or tank has been there for at least five minutes.

IV. When a person cleanses the top and sides of a vat or tank with water as provided in clause (b) of direction I see that another person remains present on the top of the vat or tank and that he has hold of a rope that should be secured to.

V. While passing over the top of a vat or tank, see that the person does not step on the man-hole, which is covered with the man-door or a grill in order to avoid injury due to door or grill giving way.

Dated this

day of

19

APPENDIX 'A'

[See condition ¹[19(5)] of the Distillery Licence in Form I]*Register of issues under bond (duty-free) and to Government liquor warehouses*

Number and date of permit	Amount authorised to be removed	Strength authorised	Destination	Date which racked	Number of cask
(1)	(2)	(3)	(4)	(5)	(6)

Weight of empty package	Weight of full package	Weight of spirit	Temperature	Indication	Strength
(7)	(8)	(9)	(10)	(11)	(12)

Weight of spirit per litre	Litres	Proof litres	Vat from which drawn	Date and hour when spirit removed	Remarks
(13)	(14)	(15)	(16)	(17)	(18)

1. Subs. by G.N. of 18.5.1974.

APPENDIX 'B'

[See condition ¹[19(5)] of the Distillery Licence in Form I]*Register of duty-paid spirits issued to shops*

Date of presentation of permit at distillery or warehouse (1)	Serial No. (2)	Permits		Name of Taluka or State (5)	Name of shop (6)
		No. (3)	Date (4)		

Route to be taken (7)	No. on each cask (8)	Registered capacity of each cask (9)	Spirit actually contained in each cask (10)	Temperature (11)	Indication (12)
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Strength (13)	Proof litres (14)	Vat from which drawn (15)	Date and hour when the spirit was issued (16)	Initials of issuing officer (17)	Remarks (18)
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1. Subs. by G.N. of 18-5-1974.

APPENDIX 'C'
 [See condition 19(6) of the Distillery Licence in Form I]
Register of spirit issued from ware house of distillery.

1	Name and date of permit	2	Amount authorised to be removed	3	Strength authorised	4	Designation	5	Date when racked	6	Number of cask	7	Weight of empty package	8	Weight of full package	9	Weight of spirit	10	Temperature	11	Indication	12	Strength	13	Weight of spirit per litre	14	Bulk litres	15	Proof litres	16	Vat from which drawn	17	Date and hour when spirit removed	18	Remarks
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APPENDIX 'D'

[See rule 7(3) and condition ¹[22(2)] of the Distillery Licence in Form I]

Name of fermentive base Stock account of fermentation bases Molasses/
Mohwra flowers

Date	Opening balance	Received	Total	Used	Closing balance	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)

1. Subs. by G.N. of 18-5-1974.

APPENDIX 'E'

[See condition ¹(24) of Distillery Licence in Form I)

Section 1—Definitions-Clarifications

1. *Molasses*.—For the purpose of this Appendix molasses is considered as the mother liquor left after removal of sugar crystals and usable as raw material for the manufacture of alcohol.

2. *Total reducing sugars*.—This represents the total reducing substances in molasses obtained by titration with Fehling's solution after hydrolysis and expressed as total invert sugar.

3. *Unfermentable sugars*.—Unfermentable sugars represent the quantity of reducing sugars contained in molasses after it has been completely fermented by yeast under specified conditions, again expressed as invert sugar.

4. *Fermentable sugars*.—Fermentable sugars shall be the difference between the total reducing sugars of molasses and the unfermentable sugars.

5. *Brix*.—This is density expressed on brix densimetric scale and taken to represent the percentage of dissolved solid matter.

6. *Alcohol and spirits*.—For purposes of comparison, 100 per cent Ethyl Alcohol corresponding to the formula C_2H_6O has been adopted as the standard for the product obtained. Spirits are the products of distillation containing alcohol.

7. *Strength of spirits*.—This represents the alcohol content of the spirit expressed in terms of degrees London proof or percentage of alcohol by volume or by weight. For the purposes of this Appendix, percentage of alcohol by volume has been adopted (Standard tables of densities of alcohol water mixtures are available for direct comparison and for arriving at strength of spirits).

8. *Degrees Gravity*.—This expresses the density in terms of the first three decimal figures of specific gravity when used for products of specific gravity greater than one.

9. *Wort*.—This consists of a solution of molasses prepared for alcoholic fermentation or for yeast propagation (The degree of gravity of a wort is related to the Brix of molasses used and the degree of dilution and enables back calculation of the quantity of molasses employed).

10. *Pitch or Bub*.—This represents the charge of yeast suspension prepared for inoculating the main fermentation vats. No direct reference has been made to the pitch in the pro forma report as it may not be necessary. (The sugars or molasses used in the preparations of the pitch will be expressed through the quantity of wort taken).

11. *Wash*.—This represents the solution of molasses or wort during or after alcoholic fermentation.

12. *Sludge*.—This is the residue of yeast and other materials which accumulates in the bottom of fermentation tanks alongwith such portion of wash as goes with it and is not taken for distillation.

1. Subs. by G.N. of 18.5.1974.

13. *Sediment*.—This represents the residue obtained after clarification or pre-treatment of molasses.

14. *Spent liquors*.—This is the residual liquid or liquids discharged after distillation of alcohol.

Section II-Proforma

..... Distillery

Run Report No. for

Part 'A'

Wort Preparation Record	Date from hours to hours
1. Quantity of molasses drawn	Metric Tons/Quintals (Average in the case of variations).
2. Brix of molasses drawn	
3. (a) Wort made	
(i) Yeast propagators	Litres at BX
(ii) Bub	Litres at BX
(iii) Fermenters	Litres at BX

	Total Litres at average *BX
(b) Equivalent molasses	1 Metrie Tons/Quintals.
4. (a) Sediment discharged after clarification. Litres.	
(b) Equivalent molasses	Metric Tons/Quintals.
5. Ammonium sulphate	Litres/Kilograms.
6. Sulphuric acid	Litres/Kilograms.
7. Other materials added, if any	Litres/Kilograms.

Part 'B'

Fermentation House Record, Record the date relating to each tank here	Date from Hrs. to Hrs. Record the total or average in this column (as applicable)	Remark
8. Nos. of the wash tanks set up		
9. Quantity filled in litres	Total	
10. Average gravity of set up, corrected for bub used.	Average*	
11. Final gravity of wash corrected to 81.5 ⁰ F.	Average*	
12. Quantity of molasses used metric tons/ Quintals	Total	
13. Duration of fermentation		
14. Maximum temperature recorded		
15. When distilled		
16. Quantity of wash sent to still	Total	
17. Quantity of sludge discharges (by volume)	Total	
18. Alcohol % by volume in wash	Average*	

PART 'C'

Still House Record	Date from Hrs. to Hrs.
19. Total wash distilled litres	Same as (16) above.
20. Details of stoppages	
21. Production	D. S. R .S. Other Spirit Total
(a) Litres	
Strength	
litres of 100 per cent	
alcohol	
(b) Production of fusel oil	Litres
22. (a) Rate of production of D. S. / R. S.	Litres/ 1lr.
(b) Rate of production of total alcohol	Litres/1lr.
23. (a) Steam drawn for R. S. Section	Litres / Kilograms.
(b) Steam drawn for dehydration Section	Litres / Kilograms.
	Litres / Kilograms.
	Total for the period.
24. Coal consumed	
25. Dehydrating agent consumed	Litres / Kilograms.

PART 'D'

Laboratory Record	Date from Hrs. to Hrs.
26. Total reducing sugars per cent molasses	
27. Fermentable sugars per cent molasses.	
28. P. H. of molasses	
29. F. S. in sediment after pretreatment litres/kilograms.	
30. Fermentable sugars in wash (average)*	
31. Alcohol per cent in wash as 100 per cent. (average)*	
32. Alcohol per cent. in spent liquor (average* value reduced to the volume of wash distilled).	
33. Quantity of Products -	D. S. R.S. Other spirits as prescribed by the State Government.
(a) Strength	
(b) Acidity	
(c) Residue on evaporation	
(d) Aldehyde	
(e) Fusel Oil	
34. Ash contents per cent Molasses (sulphate ash).	

PART 'E'

Efficiency Data	Date of period
	How arrived at -
(a) molasses drawn	Metric Tons/Quintals (1).
(b) Fermentable sugars drawn	Metric Tons/Quintals (a) × (27).
(c) Fermentable sugars in wort prepared	Metric Tons/Quintals 3(b) × (27).
(d) Total wash prepared (Litres)	Total of (9).
(e) Fermentation recovery	(d) × (31) litres
(f) Total wash distilled (litres)	1 (9).
(g) Total product obtained (Litres)	as 100% alcohol vide 21 (a).
(h) Theoretical yield	(b) × 5.30 litres of 100% alcohol.

(i) Loss of F. S. in pre-treatment	$\frac{(b) - (c) \times 100 (\%)}{(b)}$
(j) Pre-treatment efficiency	$\frac{(c) \times 100 (\%)}{(b)}$
(k) Fermentation efficiency	$\frac{(e) \times 100 (\%)}{(c) \times 82.3}$
(l) Loss of F. S. in wash	$\frac{(d) \times (30) \times 100 (\%)}{(c) \times 82.3}$
(m) Other fermentation losses	$\frac{100 - (1) - (k) (\%)}{(d)}$
(n) Sludge losses	$\frac{\text{Total of (17)} \times 100 (\%)}{(d)}$
(o) Distillation House efficiency	$\frac{(g) \times 100 (\%)}{(31)}$
(p) Loss in spent liquors	$\frac{(32) \times 100 (\%)}{(31)}$
(q) Overall efficiency	$\frac{(g) \text{ Litres}}{(a) \text{ Quintals Molasses}}$
(r) Overall efficiency	$\frac{(g) \times 100 (\%)}{(h)}$
(s) % of Dehydrated Alcohol to total	(from 21) (a).
(t) Steam consumed Kg./Litres Kg.	$\frac{\text{Kg. 24}}{(g)}$
(u) Coal consumed Kg./Litres	$\frac{\text{Kg. 24}}{(g)}$
(v) Dehydrant consumed	$\frac{25}{21 (a) (D.A.)}$

Determination of averages—The term “average” used in the proforma means the statistical average worked out in terms of the quantities of different tanks or lots and values for each tank or lot. As an example, the four tanks containing say 10,560 litres of 7.2% alcohol, 10,640 litres of 6.9% alcohol, 10,280 litres of 7.1% alcohol and 10,830 litres of 6.85% alcohol would result in an average of $(10,560 \times 7.2) \text{ plus } (10,280 \times 6.9) \text{ plus } (10,280 \times 7.1) \text{ plus } 10,830 \times 6.85$

42,310

Similarly, in the case of wort, the statistical average of different dilutions at varying brix made during that period is worked out.