

PROJECT PROFILE
ON
ALCOHOL BASED HAND RUB
(HAND SANITIZERS)

1. Product : Alcohol Based Hand Rub

2. NIC Code (2008) : 21009

3. Production Capacity : 300 K.L. per Annum.

4. Month & Year of Preparation : May,2020

Prepared by

Chemical Division

Government of India

Ministry of Micro, Small & Medium Enterprises

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1. INTRODUCTION OF THE PRODUCT :

Alcohol Based Hand Rub also known as Hand Sanitizer is a liquid, Gel or Foam generally used to decrease infectious agents on the hands. In most health care settings alcohol based hand sanitizers are preferred to hand washing with soap and water. These alcohol based versions typically contain combination of Iso Propyl Alcohol, Ethanol or n- Propanol with versions containing 60 % to 95% alcohol the most effective. Compounds such as Glycerol may be added to prevent drying of the Skin. Some versions contain fragrances, however these are discouraged due to the risk of allergic reactions. Alcohol has been used as antiseptic atleast as early as 1363 with evidence to support its use becoming available in the late 1800s. These Alcohol based hand sanitisers has been commonly used in Europe since at least 1980s. It is also on the WHO's list of essential medicines.

2. PLANT CAPACITY PER ANNUM : 300 K.L PER ANNUM.

3. MARKET & DEMAND ASPECTS :

Alcohol based hand sanitizers were mainly used in Hospitals by Doctors, Nurses and other health workers apart from higher category hotels and restaurants. But recent outbreak of COVID-19 in the month of January, 2020 in India, use of alcohol based sanitisers has become common in public and there is huge demand of the product across the country as it's use is also being recommended by the Government and WHO for safety and security of individuals from COVID-19.

4. BASIS AND PRESUMPTIONS :

- a. The scheme is based on single shift of 8 hours per day and 300 working days per annum.
- b. The interest rate on the borrowed capital has been taken as 12 % per annum.
- c. The cost in respect of Raw Materials, Packing Materials, Machinery & Equipments has been taken at the time of preparation of project profile and may vary from place to place and time to time.
- d. The rental Value of production shed is taken as per the prevailing rates and and may vary from place to place and time to time.
- e. The plant capacity utilization has been taken as 50 % for the first year, which may subsequently increase to 60% and 70% in the second and third year respectively.

5. IMPLEMENTATION SCHEDULE :

The project implementation will take about nine months. The break-up of activities with relative time for each activity is as follows:

Sl. No.	Activity	Estimated Time Period (Months)
01	Scheme preparation & approval	0-1
02	Registration under MSMED Act 2006 and sanction of loan	1-4
03	License from FDA 5 - 6	3-5
04	Placement of Orders for Machines	4-5
05	Power Connection	4-6
06	Clearance from Pollution Control Board	4-6
07	Installation of Machines	5-6
08	Recruitment of Staff & Trial run	5-6
09	Commercial Production	7 th Month Onwards

6. LEGAL ASPECTS :

(a) The product is covered under the Drug Control Act and all specifications laid down therein are to be complied with. In the State of Uttar Pradesh, for license, entrepreneurs can apply through Nivesh Mitra Portal. Details can be had from www.fsdaup.gov.in

List of documents required to upload for Grant of license :

- Address/ID proof (Photo Identity proof of proprietor (For proprietorship firm) (Aadhar card, voter I.D., Driving License, Bank Pass book, ration card)
- High School certificate
- Certificate of Qualifying Education
- Aadhar Card
- Registration Certificate
- Registration renewal certificate
- Proof of building ownership
- Map of shop
- Photograph of Shop
- Partnership deed
- Certificate of Incorporation
- Rent Agreement
- Original Treasury challan after depositing the requisite fees

License Application Process :

Online Application proceeds through below list of steps to avail license.

1. Applicant Details
 2. Choose License Type & Declaration Form Confirmation
 3. Confirm Technical Person
 4. Preview of Application and Pay Fees
 5. Finish & Application forwarded to DLA
 - c. Copy of Memorandum of articles of association or partnership deed, list of Directors etc. as the case may be.
 - d. Photocopy of the packing material specimen.
 - e. Clearance from State Pollution Control Board.
- (b) For Manufacturing of Handsanitizers, the entrepreneur has to procure Ethyl Alcohol or IPA. To procure and store Alcohol or IPA, an entrepreneur needs to take permission from Commissioner, State Excise Allahabad through District Excise (Abkari) Officer.

7. TECHNICAL ASPECTS :

- a. PRODUCTION CAPACITY : 300 K.L. per Annum.
- b. QUALITY CONTROL & STANDARDS : As per WHO norms

Final Products :

Formulation 1	Formulation 2
Final Concentrations <ul style="list-style-type: none">• Ethanol : 80 % (v/v)• Glycerol : 1.45 % (v/v)• Hydrogen Peroxide : 0.125 % (v/v)	Final Concentrations <ul style="list-style-type: none">• IPA : 75 % (v/v)• Glycerol : 1.45 % (v/v)• Hydrogen Peroxide : 0.125 % (v/v)

Requirement for Ingredients :

Reagents for Formulation 1	Reagents for Formulation 2
<ul style="list-style-type: none">• Ethanol 96 %• Hydrogen Peroxide 3 %• Glycerol 98 %• Sterile Water or boiled cold water	<ul style="list-style-type: none">• Isopropyl Alcohol 99.8 %• Hydrogen Peroxide 3 %• Glycerol 98 %• Sterile Water or boiled cold water

Raw Materials :

While Alcohol is the active component in the hand sanitizers formulation, certain aspects of other components should be respected. All Raw Materials used should be preferably free of viable bacterial spores. The Raw Materials for inclusion / consideration are listed as under:

H₂O₂	<ul style="list-style-type: none">• The low concentration of H₂O₂ is intended to help eliminate contaminating spores in the bulk solutions and recipients and is not an Active substance for hand antiseptis.• H₂O₂ adds an important safety aspect, however the use of 3-6% for the production might be complicated by its corrosive nature and by difficult procurement in some countries.
Glycerol and other humectants or emollients	<ul style="list-style-type: none">• Glycerol is added as a humectant to increase the acceptability of the product.• Other humectants or emollients may be used for skin care, provided they are affordable, available locally, miscible in water and alcohol, nontoxic and hypoallergenic.• Glycerol has been chosen because it is safe and relatively inexpensive. Lowering the percentage of Glycerol may be considered to further reduce stickiness of the handrubs.
Use of Proper Water	<ul style="list-style-type: none">• While Sterile distilled water is preferred for making the formulations, boiled and cooled tap water may also be used as long as it is free of visible particles.
Addition of Other Additives	<ul style="list-style-type: none">• It is strongly recommended that no ingredients other than those specified here be added to the formulations.• In the case of any additions, full justification must be provided together with documented safety of the additives, its compatibility with other ingredients and all relevant details should be given on product label.
Gelling Agents	<ul style="list-style-type: none">• No data is available to assess the suitability of adding Gelling agents to WHO – recommended liquid formulation, but this could increase potentially both production difficulties and costs and may compromise antimicrobial efficacy.
Fragrances	<ul style="list-style-type: none">• The tradition of fragrances is not recommended because of the risk of allergic reactions.

All hand rub containers must be labelled in accordance with national and International Guidelines.

C. MANUFACTURING PROCESS :

(i) FORMULATION :

The Recommended formulation of the product may be as under:

FORMULATION 1	FORMULAION 2
• thanol 96% : 83.34 %	• PA 99.8 % : 75.15 %
• ydrogen Peroxide 3% : 4.17 %	• ydrogen Peroxide 3% : 4.17 %
• lycerol 98 % : 1.45 %	• lycerol 98 % : 1.45 %
• ater : Balance to make 100 %	• ater : Balance to make 100 %

(ii) STEP BY STEP PREPARATION:

Step - I The Alcohol for the formula to be used is to be poured in to the large bottle or tank up to the graduated mark.

Step – II Hydrogen Peroxide is added using the measuring cylinder.

Step – III Glycerol is added using a measuring cylinder. As Glycerol is very viscous and sticks to the walls of the measuring cylinder, it should be rinsed with some sterile distilled or cold boiled water and then emptied in to the bottle or tank.

Step – IV The bottle / tank is then topped up to the batch size with sterile distilled or cold boiled water.

Step – V The lid or the screw cap is placed on the tank / bottle as soon as possible after preparation, in order to prevent evaporation.

Step – VI The solution is mixed by shaking gently where appropriate or using a paddle.

Step – VII Immediately divide up the solution in to it's final containers (e.g. 500 ml or 100 ml plastic bottles) and place the bottles in quarantine for 72 hours before use. This allows time for any spores present in the alcohol or the new/reused bottles to be destroyed.

(iii) LABELLING:

Labelling should be in accordance with National Guidelines and should include the following:

- Name of the Institution.
- WHO – recommended hand rub formulation.
- For external use only.

- Avoid contact with eyes.
- Keep out of reach of children.
- Date of production and Batch Number.
- Use: Apply a palmful of alcohol based hand rub and cover all surfaces of the hands. Rub hands until dry.
- Composition: Ethanol or Isopropanol, Glycerol and H₂O₂.
- Flammable: Keep away from flame and heat.

(iv) PRODUCTION AND STORAGE FACILITIES:

- Production and storage facilities should ideally be air conditioned or cool rooms.
- No naked flames or smoking should be permitted in these areas.
- WHO-recommended handrub formulations should not be produced in quantities exceeding 50-litres locally or in central pharmacies lacking specialised air conditioning and ventilation.
- Since undiluted ethanol is highly flammable and may ignite at temperatures as low as 10°C, production facilities should directly dilute it to the above-mentioned concentration. The flashpoints of ethanol 80% (v/v) and of isopropyl alcohol 75% (v/v) are 17.5°C and 19°C, respectively.
- National safety guidelines and local legal requirements must be adhered to the storage of ingredients and the final product.

8. FINANCIAL ASPECTS :

Sr. No.	Description	Quantity	Value (Rs)
(a)	Land & Building Covered area of 500 Sq. Mtrs. on rent	L.S.	25,000
(b)	Machinery & Equipment's		
01.	SS Mixing Vessel with 3 mm sheet Gear Box, 3 HP Motor, Capacity: 250 L	1 No.	100000
02.	SS Storage tank with 3 mm sheet , Capacity : 500 L	2 Nos.	250000
03.	Bottle Filling with other Misc. Equipments	L.S.	50000
04.	Laboratory Equipments	L.S.	100000
05.	Installation of Machinery & equipments @ 10% of the cost.		50000
06.	Preoperative Expenses	L.S.	100000
		Total	650000

(c) Raw & Packing Materials per Month:

Sr. No.	Description	Rate (Rs./unit)	Quantity	Value (Rs.)
01.	Ethanol	60/Litre	10420 Litre	625200
02.	Glycerol	150/ Litre	185Litre	27750
03.	Hydrogen Peroxide	50 / Litre	520 Litre	26000
04.	Water	L.S.	1500 Ltrs	5000
05.	Other Misc. Chemicals	L.S.	L.S.	10000
06.	Plastic Bottles 200 ml	15/piece	25000 Nos.	375000
07.	Plastic Bottles 500 ml	25/piece	10000 Nos.	250000
08.	Plastic Cans	35/ piece	500 Nos.	17500
09.	Corrugated Boxes	20/piece	1000 Nos	20000
			Total	1356450

(d) Salary & Wages per Month :

Sr. No.	Description	Nos.	Value Rs.)
01.	Manager / Chemist	01	25,000
02.	Supervisor	01	20,000
03.	Accountant	01	20,000
04.	Unskilled labour	03	30,000
		Total	95,000

(e) Utilities per Month :

Sr. No.	Description	Rate	Quantity	Value (Rs.)
01.	Power	Rs.8.00 / unit	10 HP	12000
02.	Fuel & Lubricants	L.S.	L.S.	5000
			Total	17000

(f) Other Expenses per Month :

Sr. No.	Description	Quantity	Value (Rs.)
01.	Rent	L.S.	25000
02.	Postage & Stationary	L.S.	2000
03.	Telephone	L.S.	2000
04.	Repair & Maintenance @ Rs.1000/ KL		12500
05.	Insurance @2% of P&M		850
06.	Other Misc Expenses	L.S.	10000
		Total	52350

(g) Working Capital for One Month (c+d+e+f) : Rs.1520800
OR Say : Rs.1521000
(h) Working Capital for three Months : Rs.4563000
(i) Total Capital Investment (b+h) : Rs.5213000

9. FINANCIAL ANALYSIS :

(a) Cost of production per Annum:

Sl. No.	Description	Value (Rs.)
01.	Raw & Packing Materials	16277400
02.	Salary & Wages	1140000
03.	Utilities	204000
04.	Other Expenses	628200
05.	Depreciation on Machinery & Equipments @ 10% p.a.	50000
06.	Interest on borrowed capital @ 12 % p.a.	625560
	Total	18925660
	Or Say	18926000

(b) Turnover per Annum :

Total sales value of 150 K.L. Hand Sanitizers :
Rs.21750000

@ Rs.145 per Litre

(c) Net Profit per Year :

Net Profit = Total turnover - Total cost of production
= Rs.21750000 – Rs.18926000
= Rs.2824000

(d) Profit Ration on Sales :

$$\begin{aligned} \text{Profit Ratio on Sales} &= \frac{\text{Net Profit}}{\text{Total turnover}} \times 100 \\ &= \frac{2824000}{21750000} \times 100 \\ &= \mathbf{13\%} \end{aligned}$$

(e) Rate of Return (ROR) on Total Capital Investment:

$$\begin{aligned} \text{ROR} &= \frac{\text{Net Profit per annum}}{\text{Total Capital Investment}} \times 100 \\ &= \frac{2824000}{5213000} \times 100 \\ &= \mathbf{54.2 \%} \end{aligned}$$

(f) BREAK EVEN ANALYSIS :

(i) Fixed Cost :

Sl. No.	Description	Amount (Rs.)
01.	Depreciation on Machinery & Equipments @ 10% p.a.	50000
02.	Interest on Total Capital Investment @ 12 % p.a.	625560
03.	40 % of Salary & Wages	456000
04.	40 % of Other Expenses	251280
	Total	1382840
	Or say	1383000

(ii) Break Even Point (B.E.P.) :

$$\begin{aligned} \text{B.E.P.} &= \frac{\text{Fixed Cost}}{\text{Fixed Cost} + \text{Profit}} \times 100 \\ &= \frac{1383000}{1383000 + 2824000} \times 100 \\ &= \mathbf{33 \%} \end{aligned}$$

Name and Addresses of Plant and Machinery Suppliers :

1. M/s. Bhogal Industries, Gadarian Purwa, Fazalganj, Kanpur.
Contact Person : Shri Bhupinder Singh Mb.9336274488
2. M/s. Pawan Fabricators, 18-A, Saresh Bagh Gadarian Purwa, Kanpur.
Contact Person: Shri Pawan Kumar Shukla, Mb. 9839521779
3. M/s. L & M Automatics
H-3, Panki Industrial Area, Site – 1, Kanpur – 208022.
Contact: Shri Swayash Gupta Tel. No.(0512)2692349, 2692658.
3. M/s. Qazi Engineering Pvt. Ltd.
G-21, UPSIDC Industrial Area, Site – I, Panki, Kanpur - 208022
Contact Person : Mr. S.H. Qazi, Mb:09336118246, 09956586666
E-mail: info@qaziengineering.com, shqazi@qaziengineering.com
Website: www.qaziengineering.com
4. M/s. Suveja Engineers, U-52, MIDC Hingna Road, Nagpur – 440016.
Contact: Shri J. Ghagre, Tel.No. (07104)236153, Mb: 09422147432.
E-mail: leochemind@gmail.com Website: www.suvejaprocessplants.com

Name and Addresses of Raw Material Suppliers :

1. M/s. Nath Chemical Corporation, 111/431, 80 Feet Road, Near Kotak Mahindra Bank, Kanpur – 208012
Contact Person : Shri Satish Sahni
Mb.09415127536, 09956906934, 8922986561
E-mail: nathchemical@yahoo.com, nathchemicalcorp.kanpur@rediffmail.com
2. M/s. The Kisan Sahkari Chini Mill Ltd, Kaimganj (Distillery Unit), Farrukhabad – 209502 (U.P.)
Contact Person : Shri D.K.Saxena, General Manager
Mb.7880888981, E-mail: chini_mill.kaimganj@rediffmail.com
3. M/s. Shrikoshi Printpack Pvt. Ltd. Plot No. 121, Sector- B, HSIIDC, Karnal – 132001 (Haryana)
Contact Person : Shri Vinay Taneja, Mb.9812053552
Tel No. (0184) 2220044, 2220089, E-mail: acct.shrikoshi@gmail.com
