BIO-DIESEL PROJECT REPORT

UNITECH SERVICES

CONCEPT TO COMMISSIONING

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BIO-DIESEL

Biodiesel is a renewable alternative fuel created from vegetable oils, animal fats oils and Used oil through a chemical process.

HISTORY

History of Biodiesel: Rudolph Diesel himself developed biodiesel in 1890, wherein pure vegetable oils were used in diesel engines for agriculture, where petroleum diesel was not available. Modern biodiesel fuel is an outcome of research conducted in 1930s in Belgium, which is made by converting vegetable oils into compounds called fatty acid methyl esters. Process of transesterification was used to convert vegetable oils into fatty acid alkyl esters and use as diesel fuel replacement with lower viscosity of vegetable oil. Biodiesel is the trade name of fatty acid methyl esters. Concerns over environment, energy security and use of agro products brought the use of vegetable oils to the forefront.

Biodiesel industry became house hold name in U.S. after terrorist attack of 9/11/2001, resulting in high oil prices. Biodiesel is being used Worldwide now, due to concerns over Global warming. The future of biodiesel lies in the world's ability to produce renewable feedstocks such as vegetable oils and fats to keep the cost of biodiesel competitive with petroleum.

What is Biodiesel?

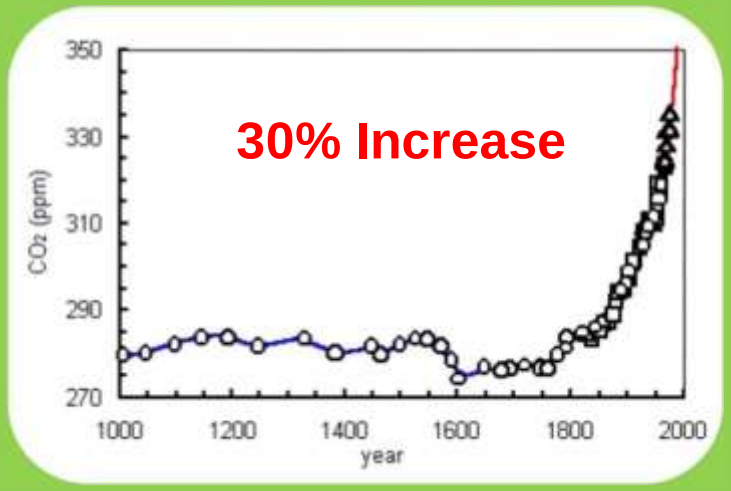
- Alternative fuel for diesel engines.
- Made from Vegetable oil , Fat oil , Used Cooking oil , Seeds Oil etc.
- Meets health effect testing (CAA)
- Lower emissions, High flash point (>300F), Safer.
- Biodegradable, Essentially non-toxic.
- Chemically, biodiesel molecules are mono-alkyl esters produced usually from triglyceride esters.

Biodiesel can be used in existing Diesel Engines

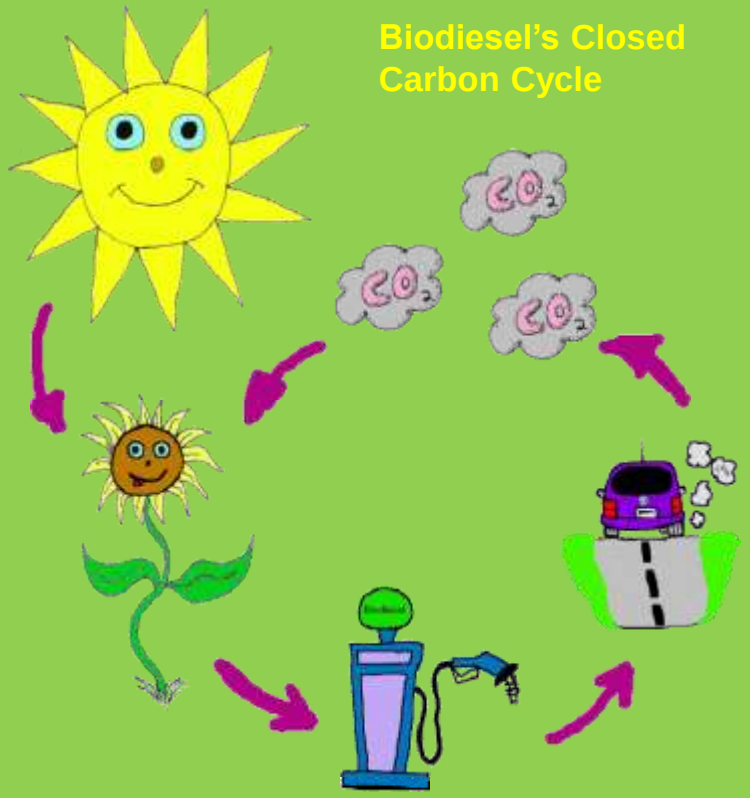
- **Pure Biodiesel (B100) or blended with petroleum diesel (B20, B30 , B 50).**
- **Little or no engine modifications.**
- **Use existing fuel distribution network.**

ENVIRONMENTAL ISSUES

- Burning fossil fuels increases atmospheric levels of carbon dioxide
- Fossil fuels are a finite resource

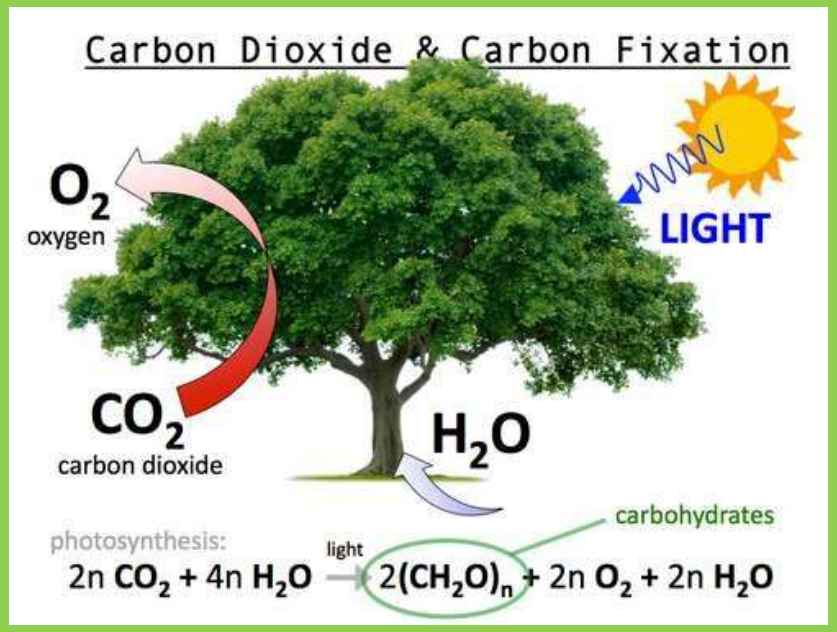


Graph taken from USF Oceanography webpage



A LESSON LEARNED FROM NATURE

Photosynthesis is a biological carbon fixation process utilized by plants to obtain energy in the form of carbohydrates



BIODIESEL a New Concept of Business

- Easy Sales Market
- Easy Availability of Raw Material
- Simple Manufacturing Process
- Catalyst used for Process
- Finished Products

SOURCES OF RAW MATERIALS

ANIMAL FAT OIL – Tallow

SEEDS OIL

Like : Jathrope , Soyaseeds , Sunflower , etc

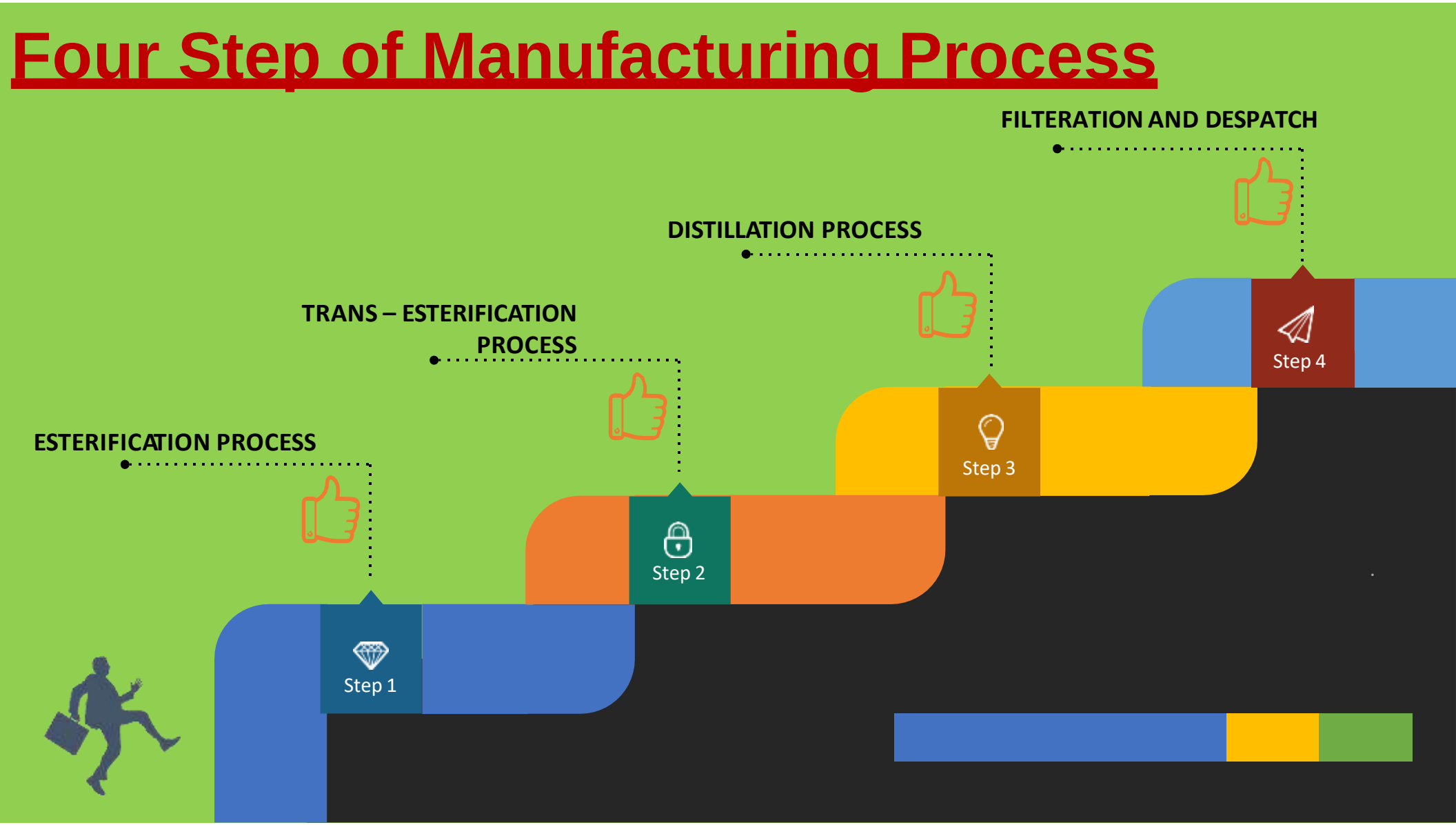
PALM STRENE

USED COOKING OIL

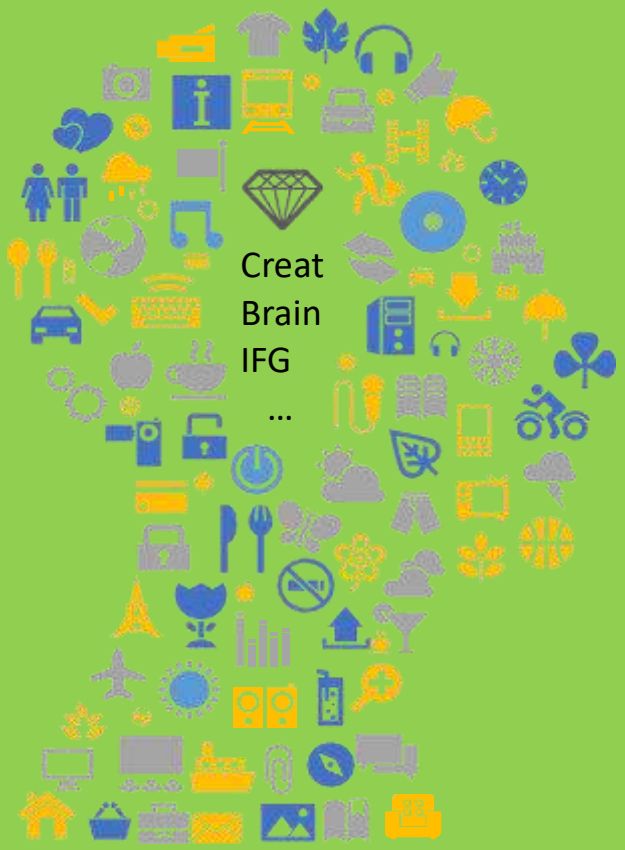
RAW MATERIAL LIST

1. PALM STRENE	2. TALLOW 0IL
3. SOYA OIL	4. SUNFLOWER OIL
5. RICE BRAN OIL	6. COTTON SEED OIL
7. KARANJA OIL	8. JATROPHA OIL
9. PALM OIL	10. CNSL (Cashew nut shell oil)
11. USED COOKING OIL	12. RAPESEEDS OIL

Four Step of Manufacturing Process



CATALYST USED IN MANUFACTURING PROCESS



THREE CATALYST USED IN PROCESS

METHANOL

NAOH / KOH

HCL

PRODUCTION COST

PRODUCTION COST RS 4 to Rs. 6 per batch of production)

1. ELECTRICITY COST :- Rs. 0.50 Rupees per batch
2. LABOUR COST :- Rs. 0.50 paise per batch
3. FUEL COST :- Rs. 0.50 per batch
4. KOH COST :- Rs. 1.00 per Batch
5. METHANOL COST :- Rs. 1.00 per Batch
6. Misc. Exps :- Rs. 1.00 per Batch

FINISHED PRODUCTS

BIO-DIESEL And Glycerin

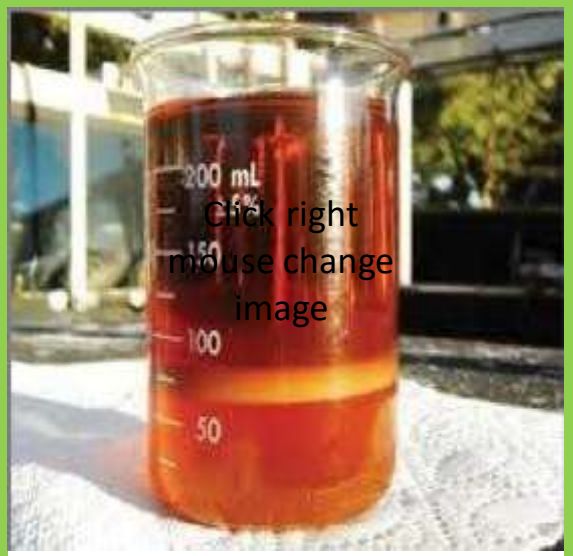
In this process we get 2 Product from our any given Raw material. Bio-Diesel and Glycerin . Biodiesel we get will be around 90 to 92 % and Glycerin will be 8 to 10 %.

From any type of Raw material we get only this Two product only.

Biodiesel – 90 to 92 %
Glycerin – 8 to 10 %

BIO DIESEL
90 TO 92 %


Figure 2. Glycerol formation after first reaction.

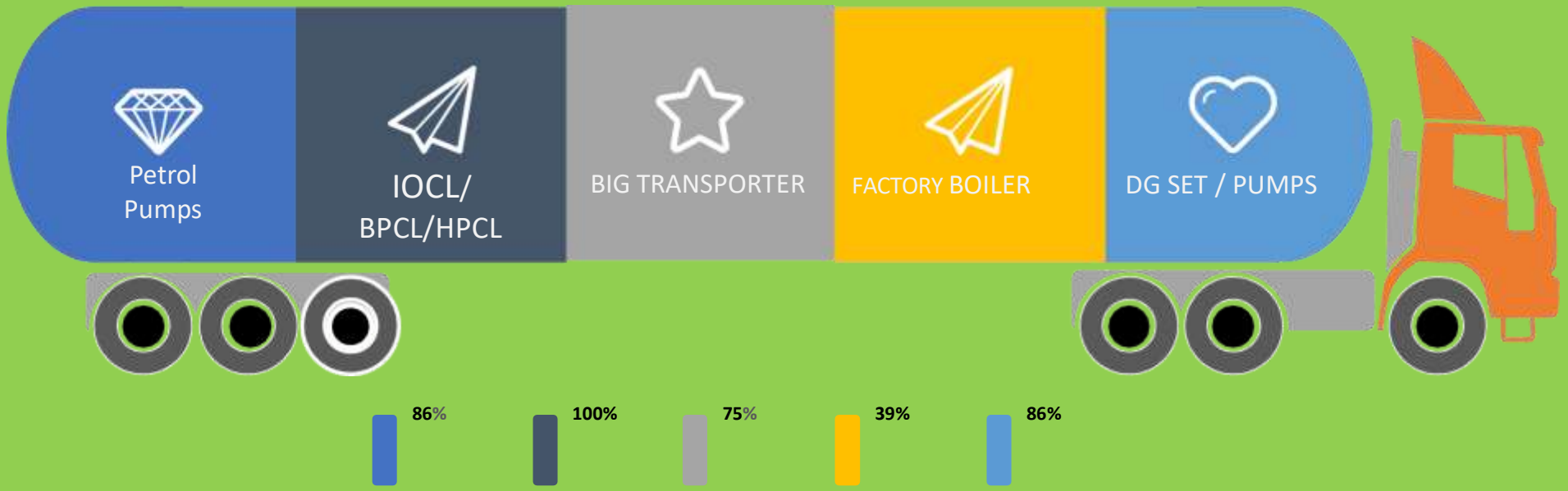


GLYCERIN
8 TO 10 %

Biodiesel Samples

Sales Market

BIO DIESEL IS SOLD THROUGH BELOW Outlets



Sales Market

IOCL

+

HPCL

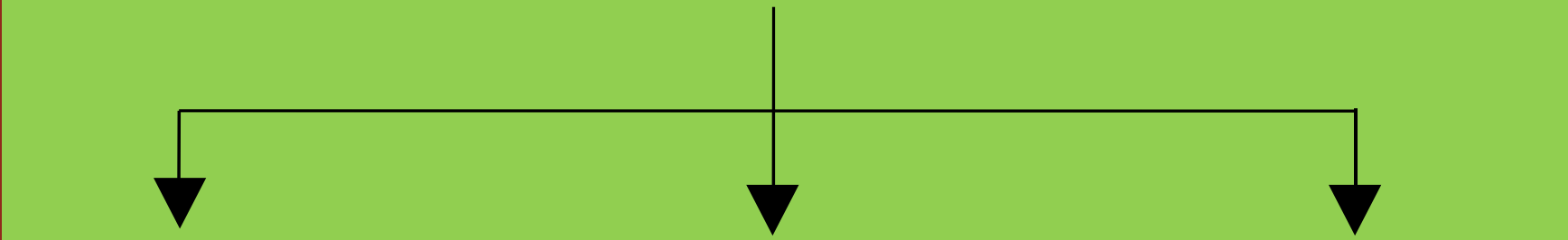
+

BPCL

Latest Buying Rate of OMC's Rs 82 to 83/- Per Ltrs Plus GST Plus Transport

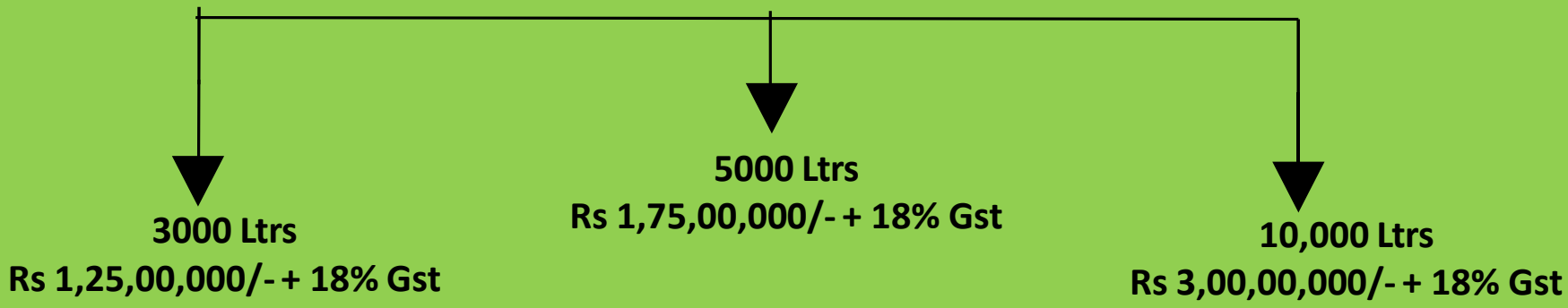
Glycerin Sales Price :- Rs 50/- TO Rs 60/- PER KG

SMALL UNIT MODELS



- SPACE REQUIRED:- 3000 SQ FT TO 5000 SQ FT
- STAFF REQUIRED:- 3 TO 5 PERSON
- ELECTRICITY REQUIRED:- 45 KW TO 75 KW
- BATCH TIMING :- 8 HOURS TO 12 HOURS (2-BATCH PER DAY)
- Civil Exps :- Extra Client has to do it Approx Rs. 10 to 20 Lacks
- Working Capital Required :- Rs. 20 to 30 Lacks
- LICENCE REQUIRED:- POLLUTION CONTROL BOARD, FACTORY INSPECTOR& GST

MEDIUM UNIT MODELS



- SPACE REQUIRED:- 6,000 SQ FT TO 20,000 SQ FT
- STAFF REQUIRED:- 5 TO 7 PERSON
- ELECTRICITY REQUIRED:- 100 KW TO 150 KW
- BATCH TIMING :- 8 HOURS TO 12 HOURS (2-BATCH PER DAY)
- CIVIL EXPS :- Extra Client has to do it Approx Rs. 30 TO 50 Lacks
- WORKING CAPITAL REQUIRED :- Rs. 1 to 3 Crore
- LICENCE REQUIRED:- POLLUTION CONTROL BOARD,FACTORY INSPECTOR & GST

LARGE UNIT MODELS

20,000 Ltrs
Rs 5,00,00,000/- + 18% Gst

30,000 Ltrs
Rs 7,50,00,000/- + 18% Gst

- **SPACE REQUIRED:- 20,000 SQ FT TO 35,000 SQ FT**
- **STAFF REQUIRED:- 10 TO 15 PERSON**
- **ELECTRICITY REQUIRED:- 150 KW TO 200 KW**
- **BATCH TIMING :- 8 HOURS TO 12 HOURS (2-BATCH PER DAY)**
- **CIVIL EXPS :- Extra Client has to do it Approx Rs. 50 TO 75 Lacks**
- **WORKING CAPITAL REQUIRED :- Rs. 3 to 6 Crore**
- **LICENCE REQUIRED:- POLLUTION CONTROL BOARD,PESO(PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION),FACTORY INSPECTOR & GST**

EXTRA LARGE UNIT MODELS

50,000 Ltrs Rs
10,00,00,000/- + 18% Gst

1,00,000 Ltrs
Rs 18,00,00,000/- + 18% Gst

- SPACE REQUIRED:- 75,000 SQ FT TO 1,00,000 SQ FT
- STAFF REQUIRED:- 15 TO 20 PERSON
- ELECTRICITY REQUIRED:- 250 KW TO 300 KW
- BATCH TIMING :- 10 HOURS TO 15 HOURS (1-BATCH PER DAY)
- CIVIL EXPS :- Extra Client has to do it Approx Rs. 1 to 2 Crore
- WORKING CAPITAL REQUIRED :- Rs. 5 to 8 Crore
- LICENCE REQUIRED:- POLLUTION CONTROL BOARD,PESO(PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION),FACTORY INSPECTOR & GST

ROI : RETURN ON INVESTMENT

3 CR INVESTMENT

- 5000 LTRS BATCH 8 HOURS PROCESSING TIME
- PER BATCH PROFIT MARGIN WILL BE APPROXIMATELY PER LITER RS 3/- TO RS 4/-
- PER DAY 2 BATCH X 5000 LTRS = 10,000 LTRS
- 10,000 LTRS X RS 3 /- PROFIT = RS 30,000 /-
- RS 30,000 X 30 DAYS = RS 9,00,000 /-
- RS 9,00,000/-X 12 MONTHS= RS 1,08,00,000/-
- INVESMENT AMOUNT WITH LAND AND OTHER WILL BE RETURN IN 34 MONTHS TO 36 MONTHS

5 CR INVESTMENT

- 10,000 LTRS BATCH 8 HOURS PROCESSING TIME
- PER BATCH PROFIT MARGIN WILL BE APPROXIMATELY PER LITER RS 4/- TO RS 5/-
- PER DAY 2 BATCH X 10,000 LTRS = 20,000 LTRS
- 20,000 LTRS X RS 4/- PROFIT = RS 80,000 /-
- RS 80,000 X 30 DAYS = RS 24,00,000 /-
- RS 24,00,000/-X 12 MONTHS= RS 2,88,00,000/-
- INVESMENT AMOUNT WITH LAND AND OTHER WILL BE RETURN IN 24 MONTHS TO 26 MONTHS

LICENSES REQUIRED

- POLLUTION CONTROL BOARD
- PESO (PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION)
- FACTORY INSPECTOR LICENSE
- GST

OUR SERVICES

- RAW MATERIAL PROCUREMENT GUIDELINES.
- SALES GUIDELINES.
- GOVERNMENT REFINERY TENDERS PARTICIPATE GUIDELINES.
- PRODUCTION BATCH TRAINING.
- GOVERNMENT LICENSE SERVICES.

UNITECH SERVICES

We are Turnkey project supplier and provide below mentioned services as well.

- Project Designing and Consultancy
- Technical Know How Related to Project
- Plant and Machinery Supply , Installed and Erection & Commissioning
- Trail Batch Run and Production Setup

Raw Material Procurement Services

Human Resource Supply and Management

Project Related Licenses Services

THANK FOR WATCHING