



MANUFACTURING UNIT OF REFINING OF USED OIL AND BLENDING OF OIL PRODUCTS

Kamal Refinery Limited

Regd. Office : Plot No 188/2, Chang'ombe, P.O.Box 10392, Dar es Salaam

Project Site : Kamal Indl Estate

Plot no 84, Dar Es Salaam Road, Zinga District, Bagamoyo

Introduction

Lube base oil is one of the most valuable constituents in crude oil. Virgin lube oils are recovered from lube crude by solvent extraction followed by wax removal. Average crude oils have 3-8% lube content. Whereas lube oils have 60-75% recoverable lube content; which is burned or dumped would mean loss of a valuable natural resource.

Purpose

The purpose is to re-refine the used motor oil by a process, which removes the maximum contaminants to produce good quality base oil. The base oil is then blended by adding different additives to produce lubricants such as machine oil, motor oil, transmission fluid and grease etc.

Use of base Oil

The lube oil obtained from the plant needs correction with respect to mainly viscosity and also to impart specific characteristics such as anti-wear, rust-resistance, anti-foam elusion characteristics, oxidation stability etc. as required by each end use, this is achieved by adding certain additives in pre-determined quantities

Market Aspects

Lube oil are the life line for industrial and automotive equipment as also various consumer applications Since virgin lube oils are petroleum based product, any increase in crude oil prices automatically increases its cost of production. Also crude oil reserves are fast depleting. In the light of the above scenario, re-refining of used oil has gained great importance.

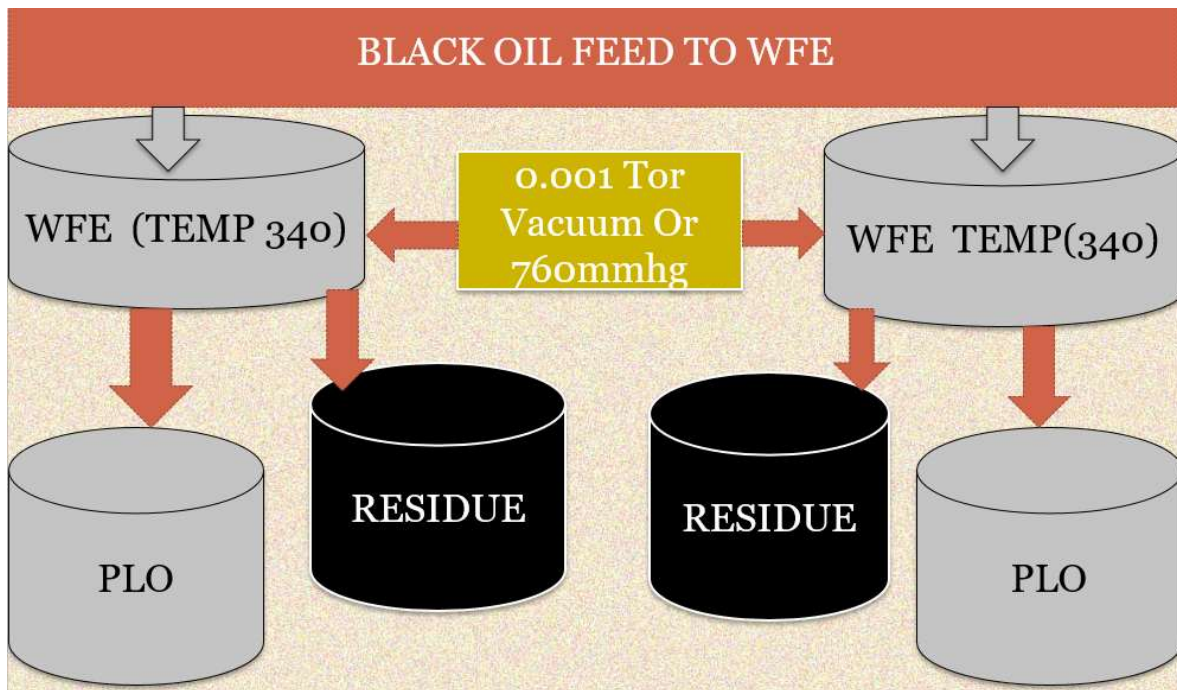
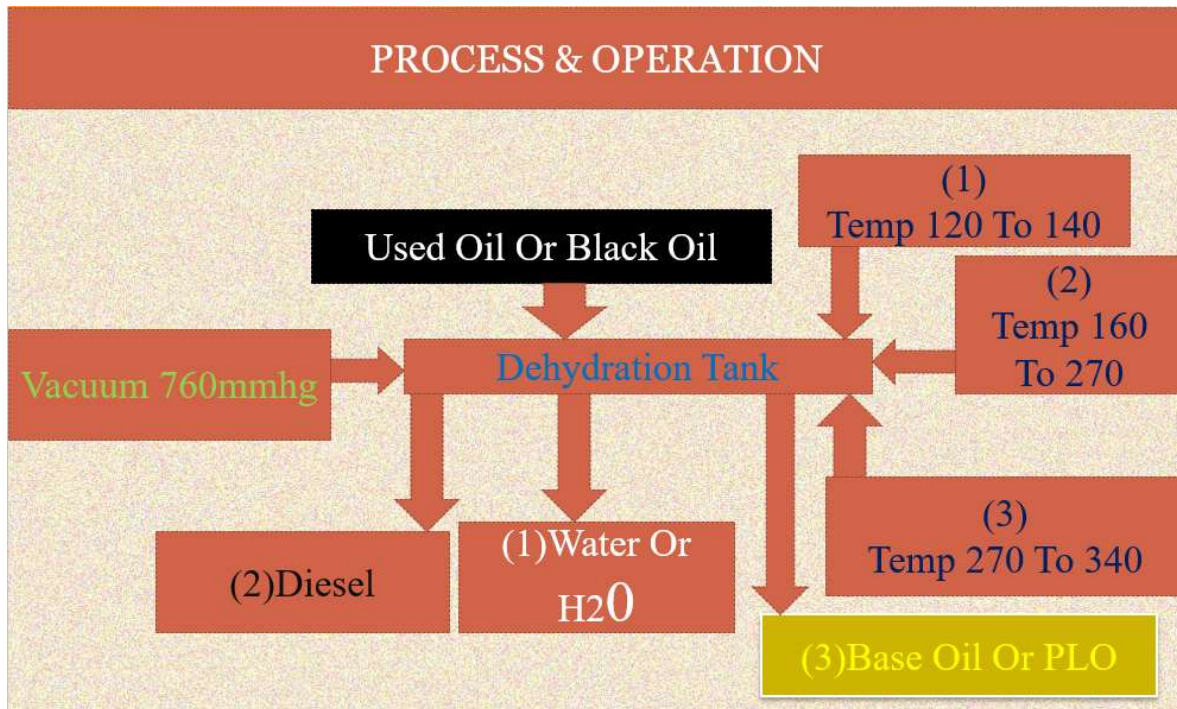
Availability

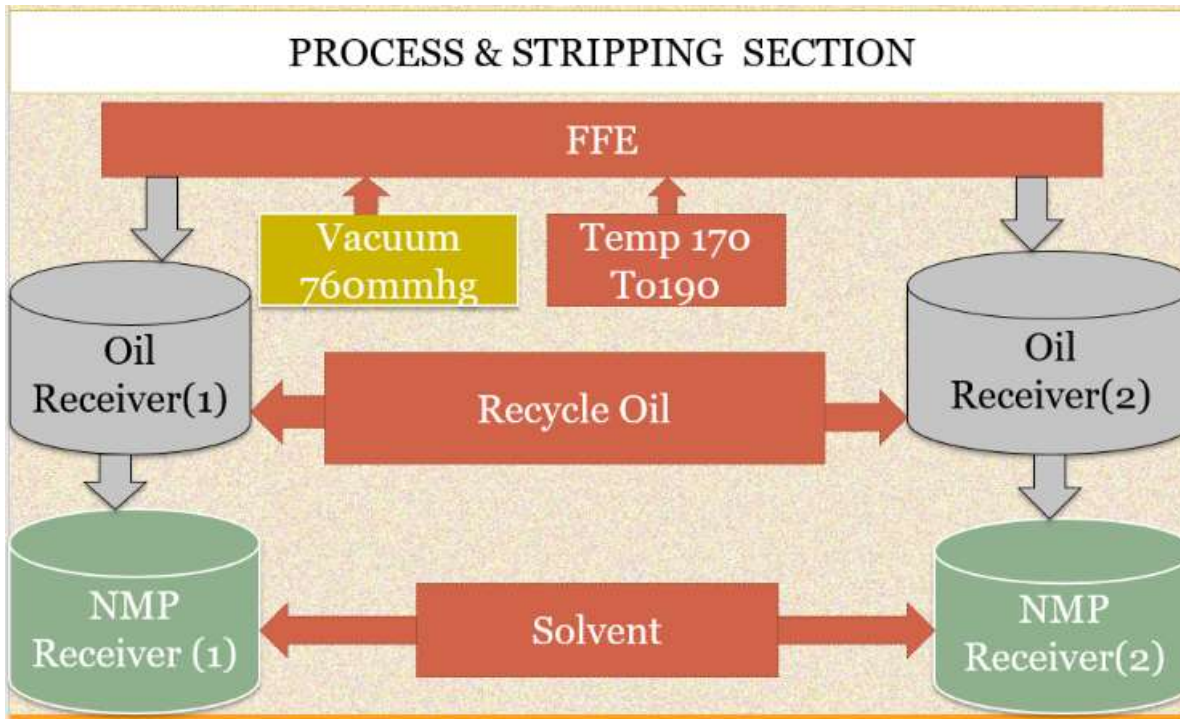
Used motor oil is available from various sources, the main being as follows; Auto Service Station, Road Transport Authorities, Port Authorities, Industries, Air Craft Maintenance etc.

Process

Generally used motor oil contains contamination in the form of: Diesel, Kerosene, Petrol, Water, Dart and Dust, Carbon and Rust. The idea is to remove as far as possible all this contamination and is done by treating and passing the oil through various processes

Reclamation techniques involve methods like settling, decanting, heating, dehydration, filtration, centrifuging. Re-refining covers methods of purification of used oil through distillation, hydro treatment, chemicals etc.





Major Plant Highlights:

- Development of refinery unit of the used oil, blending of recycled oil, virgin oil and related products;
- Total capacity of the plant will be to process 27,000 tons of used oil;
- Project to generate employment both during the development and after completion.
- Government to earn revenue in terms of various levies on the Company associated with the operations. Hence boosting national economy.

SWOT ANALYSIS

STRENGTH

- Company belongs to a reputed and well established group of Tanzania and this project is first of its kind in East Africa.
- The project will be established in EPZ under a license from Export Processing Zone Authority and thus will avail tax benefits.
- The project will use the latest refining technology which will result in to high yield and recovery of RBO.
- The project will have a ready available market of 12 countries in this region.
- The project is environmentally friendly as it reduces the disposal of used oil in to ground and other unethical routs.
- The project will result into earning of foreign exchange for Tanzania due to export of its products and also save foreign exchange as there will be reduced import of lubricants.
- Certificate from Environmental Impact Assessment and Business license from (EWURA) has been obtained.

WEAKNESS

- There are no entry barriers for this project, but it is not easy to copy this technology. We plan to increase the capacity of the plant as and when required. We are sure that we will get the benefit of being first in the market.
- There is no organized system of collecting used oil. The company shall device its own collection system. Being in steel scrap collection business shall help in this as well.

OPPORTUNITIES

- Being first in the country, hence no competition.
- There is a big market of 20 million tons spread over 12 countries.
- There in opportunity to increase capacity as soon as the network for collection of used oil is set up.
- There is opportunity to add other products like grease.

THREATS

- Other players may come in: as technology is difficult to copy entry would be difficult.
-

COST OF THE PROJECT				
				USD
NO.	COST OF PROJECT	Used Oil Refinery	Blending Unit	AMOUNT
1	Land & Site Development (4,945 Sq Meter @ USD 60 per sq meter)			296,700
2	Plant and Machinery	620,000	580,000	1,200,000
3	Building (Shed and Civil Works etc)	130,000	820,000	950,000
4	Plant and Machinery - New			725,000
5	Further Operational Cost			275,000
	Total			3,446,700
	TOTAL	750,000	1,400,000	3,446,700

NO.	MEANS OF FINANCE	TOTAL
1	Equity	1,550,000
2	Director's Loan	896,700
3	Further Investment	1,000,000
	TOTAL	3,446,700

Particulars	Amount in TZS	Amount in USD	Proposed Shareholding
Present Share Capital	3,541,755,174.00	1,550,002.26	61%
Further Share Capital	2,285,000,000.00	1,000,000.00	39%
Total	5,826,755,174.00	2,550,002.26	

PROJECTED PROFITABILITY STATEMENT

USD

PARTICULARS	@100%	Years				
		Year 1	Year 2	Year 3	Year 4	Year 5
Turnover						
Capacity		50%	67%	80%	80%	100%
Refining of Used Oil						
Product - Lubricants Base Oil- Recycled						
Capacity (in Tons)	10,125	5,063	6,750	8,100	8,100	10,125
Selling Price per Ton	350	350	361	372	387	406
Turnover (A)	3,543,750	1,771,875	2,436,750	3,013,200	3,134,700	4,110,750
Product - Lubricants						
Capacity (in Tons)	11,138	5,569	7,425	8,910	8,910	11,138
Selling Price per Ton	650	650	670	690	718	754
Turnover (B)	7,239,375	3,619,688	4,974,750	6,147,900	6,397,380	8,397,675
Total Turnover (A+B)		5,391,563	7,411,500	9,161,100	9,532,080	12,508,425

PARTICULARS	@100%	Years				
		Year 1	Year 2	Year 3	Year 4	Year 5
Raw Materials						
Used Oil						
Raw Oil Requirement	27,000	13,500	18,000	21,600	21,600	27,000
Cost per Ton	178	178	183	188	194	200
Cost (C)	4,800,060	2,400,030	3,294,000	4,060,800	4,190,400	5,400,000
Bleaching Earth						
Raw Oil Requirement	1,890	945	1,260	1,512	1,512	1,890
Cost per Ton	120	120	124	128	132	136
Cost (D)	226,800	113,400	156,240	193,536	199,584	257,040
Additives						
Raw Oil Requirement	1,013	506	675	810	810	1,013
Cost per Ton	450	450	464	478	492	507
Cost (E)	455,625	227,813	313,200	387,180	398,520	513,338
Total Cost of Raw Material (C+D+E)		2,741,243	3,763,440	4,641,516	4,788,504	6,170,378

<i>USD</i>						
PARTICULARS		Years				
	@100%	Year 1	Year 2	Year 3	Year 4	Year 5
Packaging Cost						
Drums for LBO						
Polymer	50,625	25,313	33,750	40,500	40,500	50,625
Cost per Ton	15	15.00	15.45	15.91	16.39	16.88
Cost (F)	759,375	379,688	521,438	644,355	663,795	854,550
HDPE Cans for Lubricants						
Cost per Ton	100					
Cost (G)	1,113,750	556,875	764,775	926,640	935,550	1,180,575
Total Packaging Cost (F+G)		936,563	1,286,213	1,570,995	1,599,345	2,035,125

<i>USD</i>						
PARTICULARS		Years				
		Year 1	Year 2	Year 3	Year 4	Year 5
Direct Labour						
Skilled Labour		6	7	8	9	10
Wages per Employee p.a.		12,000	13,200	14,400	15,600	16,800
Wages Skilled Labour - (H)		72,000	92,400	115,200	140,400	168,000
Un-Skilled Labour		20	22	24	26	28
Wages per Employee p.a.		6,000	6,600	7,200	7,800	8,400
Wages Unskilled Labour - (I)		120,000	145,200	172,800	202,800	235,200
Total Wages (H+I)		192,000	237,600	288,000	343,200	403,200

Manpower Expenses						
Expartiates		2	3	4	4	5
Wages per Expartiate		36,000	39,000	42,000	45,000	48,000
Wages - Expartiates		72,000	117,000	168,000	180,000	240,000
Total Manpower Expenses		72,000	117,000	168,000	180,000	240,000

Power & Utility Expenses						
Electricity						
Units / Ton	20.00					
Cost per unit \$	0.10					
Cost per Ton \$	2.00					
Total Capacity (In tons)	27,000					
Total Electricity Cost in \$	54,000	27,000	36,000	43,200	43,200	54,000
Diesel						
Units / Ton	1.60					
Cost per unit \$	0.85					
Cost per Ton \$	1.36					
Total Capacity (In tons)	27,000					
Total Cost in \$	36,720	18,360	24,480	29,376	29,376	36,720
Other Utilites		6,000	9,000	12,000	15,000	18,000
Total Power Expenses		51,360	69,480	84,576	87,576	108,720

PROJECTED PROFITABILITY STATEMENT

USD

PARTICULARS	Years				
	Year 1	Year 2	Year 3	Year 4	Year 5
Capacity Utilisation	50%	67%	80%	80%	100%
Total Annual Income	5,391,563	7,411,500	9,161,100	9,532,080	12,508,425
Direct Costs					
Raw Material Costs	2,741,243	3,763,440	4,641,516	4,788,504	6,170,378
Consumables & Packaging	936,563	1,286,213	1,570,995	1,599,345	2,035,125
Direct Labour	192,000	237,600	288,000	343,200	403,200
Power Expenses	51,360	69,480	84,576	87,576	108,720
Spares, Repairs & Maintenance	107,831	148,230	183,222	190,642	250,169
Other Direct Overheads	161,747	222,345	274,833	285,962	375,253
	4,190,743	5,727,308	7,043,142	7,295,229	9,342,844
Gross Profit (A-B)	1,200,819	1,684,193	2,117,958	2,236,851	3,165,581
Administration Expenses	269,578	370,575	458,055	476,604	625,421
Manpower Expenses	72,000	117,000	168,000	180,000	240,000
Service Charges to EPZA	72,000	72,000	72,000	72,000	72,000
Marketing Expenses	215,663	296,460	366,444	381,283	500,337
Financial expenses on Long Term Loan	-	-	-	-	-
Depreciation	137,627	261,080	234,354	210,674	314,672
Total Indirect Expenses	766,867	1,117,115	1,298,853	1,320,561	1,752,430
Operating Profit Before Tax	433,952	567,077	819,105	916,290	1,413,151
<i>Taxation</i>	<i>130,186</i>	<i>170,123</i>	<i>245,731</i>	<i>274,887</i>	<i>423,945</i>
Operating Profits After Tax	303,766	396,954	573,373	641,403	989,206
Proposed Dividends	-	-	-	-	-
Cummulative Net Cash Profits CF to Balance Sheet	303,766	700,720	1,274,094	1,915,497	2,904,702
Net Cash Profits from Operations	441,393	658,034	807,728	852,077	1,303,878

PROJECTED BALANCE SHEET

USD

NO.	Particulars	YEARS				
		Year 1	Year 2	Year 3	Year 4	Year 5
A	Fixed Assets (Net)	3,034,073	2,772,993	2,538,638	2,327,965	2,013,293
B	Current Assets					
	Stock	411,203	869,542	1,072,837	1,111,699	1,448,937
	Debtors	221,571	304,582	376,484	391,729	514,045
	Cash & Bank Balance	285,184	457,371	838,125	1,346,537	1,917,241
	Total current assets	917,957	1,631,495	2,287,446	2,849,966	3,880,223
C	Current Liabilities					
	Sundry Creditors	140,486	191,839	236,466	246,148	316,411
	Other Creditors	11,079	15,229	18,824	19,586	25,702
	Total current liabilities	151,564	207,068	255,291	265,734	342,113
D	Net Current Assets	766,393	1,424,428	2,032,155	2,584,232	3,538,110
	Total Assets	3,800,466	4,197,420	4,570,794	4,912,197	5,551,402
	Financed by:					
E	Equity	1,550,000	1,550,000	1,550,000	1,550,000	1,550,000
F	Director's Loan	946,700	946,700	746,700	446,700	96,700
G	Reserves	303,766	700,720	1,274,094	1,915,497	2,904,702
H	Investment	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
	Total Liabilities	3,800,466	4,197,420	4,570,794	4,912,197	5,551,402

PROJECTED CASH FLOW STATEMENT

USD

Particulars	YEARS				
	Year 1	Year 2	Year 3	Year 4	Year 5
Inflow					
Equity	1,550,000	-	-	-	-
Director's Loan	896,700	-	-	-	-
Long Term Loan from Bank	-	-	-	-	-
Further Investment	1,000,000	-	-	-	-
Profit from Operations	441,393	658,034	807,728	852,077	1,303,878
Total Inflow	3,888,093	658,034	807,728	852,077	1,303,878
Outflow					
Construction Cost	3,171,700	-	-	-	-
Increase / (Decrease) in Net Current Assets	481,210	485,847	226,973	43,664	383,174
Repayment of Long Term Loan	-	-	-	-	-
Repayment of Director's Loan	-	-	200,000	300,000	350,000
Dividends	-	-	-	-	-
Total Outflow	3,652,910	485,847	426,973	343,664	733,174
SURPLUS / (DEFICIT)	235,184	172,187	380,754	508,412	570,703
Opening Cash Banance	50,000	285,184	457,371	838,125	1,346,537
Closing Cash Balance	285,184	457,371	838,125	1,346,537	1,917,241
Cash Balance as per B/S.	285,184	457,371	838,125	1,346,537	1,917,241

CALCULATION OF WORKING CAPITAL

USD

SR.NO.	PARTICULARS	YEARS				
		Year 1	Year 2	Year 3	Year 4	Year 5
A	Current Assets					
	Raw Material (15 Days)	112,654	154,662	190,747	196,788	253,577
	Packing (1 Month)	76,978	105,716	129,123	131,453	167,271
	Finished Good Stock (15 Days)	221,571	609,164	752,967	783,459	1,028,090
	Sundry Debtors (15 Days)	221,571	304,582	376,484	391,729	514,045
	Current Assets Required	632,774	1,174,125	1,449,321	1,503,429	1,962,982
B	Current Liabilities					
	Sundry Creditors (15 days)	140,486	191,839	236,466	246,148	316,411
	Other Liabilities (15 days)	11,079	15,229	18,824	19,586	25,702
	SUB TOTAL	151,564	207,068	255,291	265,734	342,113
C	NET WORKING CAPITAL REQUIREMENT	481,210	967,057	1,194,030	1,237,695	1,620,869

CALCULATION OF FINANCIAL INDICATORS

Projected Internal Rate of Return (IRR) & Net Present Value (NPV)

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5
Capital Outflow/Investment	(3,171,700)	-	-	-	-
Cash Profits - CPBDIT	441,393	658,034	807,728	852,077	1,303,878
Increase in Current Assets	481,210	485,847	226,973	43,664	383,174
Total	(2,249,097)	1,143,882	1,034,701	895,741	1,687,052
IRR =	36%				
NPV =	1,337,439	@ 10%			

Projected Pay Back Period

USD

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5
Operating Cash Profit After Tax	441,393	658,034	807,728	852,077	1,303,878
Interest on Long Term Loan	-	-	-	-	-
Gross Operating Profit	441,393	658,034	807,728	852,077	1,303,878
Cumulative Gross Operating Surplus	441,393	1,099,428	1,907,155	2,759,232	4,063,110
Net CoP (US\$) =	3,446,700	Pay Back	Period =	3.73	

<i>Projected Break Even Analysis</i>					
<i>USD</i>					
Particulars	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue					
Total Revenue	5,391,563	7,411,500	9,161,100	9,532,080	12,508,425
Variable Cost					
	4,190,743	5,727,308	7,043,142	7,295,229	9,342,844
Fixed Cost					
Indirect Cost	209,627	378,080	402,354	390,674	554,672
Administration Expenses	269,578	370,575	458,055	476,604	625,421
Service Charges to EPZA	72,000	72,000	72,000	72,000	72,000
Marketing Expenses	215,663	296,460	366,444	381,283	500,337
Sub-Total	766,867	1,117,115	1,298,853	1,320,561	1,752,430
Break Even Revenue	3,443,160	4,916,006	5,618,112	5,627,416	6,924,524
Margin of Safety	1,948,402	2,495,494	3,542,988	3,904,664	5,583,901

<i>Return on Investment (ROI) per year</i>					
<i>USD</i>					
Particulars	Year 1	Year 2	Year 3	Year 4	Year 5
ROI before Tax	12.59%	16.45%	23.76%	26.58%	41.00%
ROI after Tax	8.81%	11.52%	16.64%	18.61%	28.70%
Particulars					
	Average				
ROI before Tax	24.08%				
ROI after Tax	16.85%				