

FREQUENTLY ASKED QUESTIONS ABOUT PALM OIL MILL



1. What are the minimum and maximum plant capacities for the Palm Oil Mill supplied by Mecpro?

Mecpro can design and supply palm oil mills of 2 MT FFB/hr. to 150 MT FFB/hr. However, any downstream project to increase the OER is economical above 25 Ton FFB/hr. The new design of palm oil mill results in highest recovery of oil, improved quality and less utility consumption compared to the current practices followed in the conventional Palm Oil Mill process.

2. What is the project implementation time?

Usually, the project implementation schedule varies from 8 months to 18 months, depending upon the location and soil conditions as well as the capacity of the project.

3. What is the payback period of the Mecpro Multi extraction System?

The Mecpro multi extraction system will perform both liquid –liquid extraction and solid –liquid extraction in a solvent extraction plant. The liquid-liquid extraction will enable the extraction of the floated or emulsified oil from effluent and the solid liquid extraction will extract oil from wet mesocarp fiber. The OER increases by more than 1% on an FFB base, and for an oil base it increases by more than 5.5% from the current figures. The capital investment will be recovered in 1 to 3 years.

4. How can one reduce the current process steps?

MECPRO's innovative cutting edge third generation extraction technology allows us to extract oil from even the outlet of a press without adding any water after clarifier bottom or after the decanter along with the sterilizer water effluent. In such cases the water effluent load as well as the water consumption is reduced significantly. Also the oil and solid free effluent are cut down.

5. How much oil can be produced from wet Mesocarp Fiber?

Usually, the Mesocarp fiber has 4% to 8% oil depending upon the mill efficiency. MECPRO's innovative cutting edge process technology on preparation of Mesocarp Fiber, namely slivering of Fibre, enhances penetration of hexane to the entire raw material. This results in over 25% more oil recovery than the design used normally. The recovery rate is at least 4% in a well operated plant, meaning that a 90 FFB /hr. plant will produce 12 MT oil per day (3600 MT/Yr.)

6. How much oil can be produced from effluent water?

Generally, the effluent water has 60% of the FFB weight in an efficient plant. In such cases 1, 29,000 L of effluent with 0.9 to 1.2% oil with an average recovery of 1 % means 13MT oil is produced daily in a 90 FFB/Hr. plant.

7. What is the cost of a Mecpro Multi extraction Plant?

A Mecpro Multi extraction plant will result in additional oil recovery of 7500 MT/Yr with a capital investment of 4.9 Million US Dollar. Even considering the cost of oil to be as low as 610 \$/MT, the capital investment will be recovered within 1 year. Besides it will reduce the cost of effluent treatment, reduce the area for effluent and reduce manpower cost.

8. Where you can improve the Oil Recovery rate (OER)?

Based on MECPRO's technology, the OER is enhanced by 1 – 1.3%, depending on the oil content of the Fiber and effluent water. However, research is continuing for further improvement in the OER.



9. How can one reduce the utility consumption?

In the case of palm fiber oil extraction, MECPRO guarantees the lowest utility consumption. For Hexane on continuous running this will be less than 1 Kg/MT and on intermittent running it will be 2 Kg/MT, for Steam 390 Kg/Hr, for Power 15 to 20 Kw/MT depending upon the distance from the mill. The water requirement is negligible.

In the case of palm oil mill this depends upon the decisions as discussed in the Q No. 4 above.

10. How can one improve the quality of the product?

During recovery of oil from the effluent, all the oil coming with the effluent water will be recovered in a closed circuit, to eliminate oxidization and recover the oil with less FFA, which in turn will improve the DOBI of the oil processed. Once the oil and solid are separated from the effluent, the effluent water characteristics will change significantly.

11. Is the process technology proven or patented?

MECPRO has supplied over 100 Solvent plants of capacity ranging from 100 TPD to 1000 TPD in the last 29 years which are operating successfully across the globe. Patents have been obtained for innovative process technologies on Wet Meso-carp Fibre Oil Extraction developed by MECPRO and patents have been applied for oil recovery from effluent (Application no. 1709/DEL/2015A). We hold 9 patents in the palm oil mill and associated process technologies.

12. What to do with the oil recovered from the effluent?

Our effort is to ensure that the product is positioned on a Nutritional platform. Besides Cosmetics. With Carotene recovery, Phytosterol, Tocopherol and Tocotrienol are present in concentrations of over 2000 PPM in the oil.

Moreover, this oil can be used for direct consumption after refining since the DOBI is over 2.0. The fatty acid composition of fibre oil is the same as that of Palm Oil, and the Nutritional value is higher than for Palm Oil extracted through a press with 2% higher FFA than CPO. If the law of the land permits this can be mixed with CPO.

13. How about Safety? What should be the distance between other buildings and an MFOE plant?

MECPRO's solvent plants have adopted more than five patented technologies in the process incorporating a hexane dictator at all outlets with a PLC system. Hence, they are 100% safe as adequate safety features are incorporated. Plants have the option of operating on both flammable, as well as, non-flammable solvents. The distance between buildings should be 15.25 meters and the Fire Zone should be 40 Meters.

14. How much area does a Mecpro multi extraction plant require?

This depends on the plant capacity. Usually, the plant can be set up in 18Mtrs x 30 Mtrs with a height of 15 Mtrs., leaving a gap of 15.25 Mtrs, all around the main plant. The total area required is 3500 m².

15. What is the operational life of the plant and equipment?

The plant and equipment supplied by MECPRO has a service lifetime of 15-20 years, subject to periodic preventive maintenance, as per MECPRO's guidelines.

16. How do we proceed further?

MECPRO can arrange a detailed technical presentation to your core technical team, to clarify any doubts. Moreover, MECPRO can arrange a plant visit to show you the latest plant, based on our state-of-the-art cutting edge innovative technologies. **Contact: projects@mecpro.com**