

PRODUCTION OF C16 AND C18 MIXED METHYL ESTERS

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Palm oil methyl esters are obtained from esterification and transesterification of crude palm oil with methanol using a suitable catalyst. It has been successfully evaluated as a diesel substitute, thus palm oil methyl esters are also known as palm diesel.

Palm oil methyl esters are made up of mainly C16, C18, C18:1 and C18:2 methyl esters. The typical compositions are 45% of C16 methyl esters, 5% of C18 methyl esters, 39% of C18:1 methyl esters and 10% of C18:2 methyl esters.

Our present technology is able to fractionate the palm oil methyl esters into a range of individual esters.

PRODUCTION TECHNOLOGY

The process developed involves fractionation of crude and distilled palm oil methyl esters, either by fractional distillation or crystallization or integration of fractional distillation and crystallization. Conditions have been found to yield the following products:

- C16 methyl esters;
- C16 and C18 mixed methyl esters (saturated methyl esters);
- C18, C18:1 and C18:2 mixed methyl esters; and
- C18:1 and C18:2 mixed methyl esters (unsaturated methyl esters).

APPLICATIONS

The saturated and unsaturated fractions of the palm oil methyl esters have wide applications. The saturated fraction which consists mainly of C16 methyl esters and C18 methyl esters can be used as oleochemical feedstocks for the production of high quality white soap and α -sulphonated methyl ester (α -SME) to be used as active ingredients in detergent formulations. The unsaturated fraction consisting mainly of C18:1 and C18:2 methyl esters exhibit low pour point and similar fuel properties as petroleum diesel. It is suitable to be used as diesel substitute in temperate countries. Besides this, it can also be a feedstock for the production of high oleic oil, synthetic lubricant, civetone (a perfumery material) and as industrial solvent.



CONCLUSION

The C16 and C18 methyl esters are high valued products compared to palm oil methyl esters. These would enhance the economic viability of the palm oil methyl esters project.



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