

## FAME Fractionation and Hydrogenation

TIRA has developed in house technology for fractionation of Palm Oil FAME and **hydrogenation of C16 ME fraction on a continuous fixed bed hydrogenation system and has successfully commercialized the same.**

### FAME Fractional Distillation

Fractional distillation, a unit operation, is being extensively used for fatty acids and fatty acid methyl esters purification and separation of the individual fatty acid or fatty acid methyl ester in its pure form.

Any vegetable oil methyl ester to be fractionated / distilled is taken to a degassing column before being sent to main fractionation unit. The degassed vegetable oil methyl ester feed consisting of various ranges of fatty acid methyl esters. The individual fatty acid methyl ester or nearly proximate boiling points methyl esters fractionate off as a single fraction from higher boiling ester under reduced pressure. The fractionated individual methyl ester or group of ester as a fraction has diverse applications in various industries. The low boiling ester fraction can be used as inputs for production of number of oleochemicals, while higher boiling fraction especially C18 methyl ester can be used as both biodiesel and the production of oleochemicals.

We provide different capacities fractionation plants with services. Our fractionated system design typically, two or three columns are involved for fractionation of FAME.

### PALMOIL METHYL ESTER

Hydrogenation of fatty acid methyl ester is based on the technology developed in house, which containing unsaturation is carried out to convert into saturated FAME using gaseous hydrogen and catalyst at certain temperature.

C16 fraction in case of the palm methyl ester fractionation/palmstearin fraction is essential to hydrogenate owing to containing trace of the unsaturated C16 methyl ester, which will interfere during sulfonation reaction. The hydrogenation of this fraction is carried in continuous fixed bed catalyst reactor at under pressure and at around 150°C temperature.

We provide various capacities hydrogenation plants, which specially designed for FAME, with utility equipments and services. The plants are provided with all the required safety features essential as required.

**REFERENCE** Plant by our technology partners in Andreotti Impianti, Italy.

SAPONERIE MARIO FISSI

Florence (Italy)

12 TPD

## Hydrogenation Plant

Oils and fats are comprised of saturated and unsaturated triglycerides. For better stability and applications, oils and fats are hydrogenated using gaseous hydrogen and catalyst at 180°C temperature. On addition of hydrogen, the unsaturated fatty acids triglycerides are converted into saturated fatty acids triglycerides.

For Vanspati production, which is the edible product being used, the vegetable oil or a mixture of oils is selectively hydrogenated batch / continuous operation using hydrogen and nickel as a catalyst at 180°C. The plants are provided with all the required safety features equipments as require.

We provide both batch and continuous hydrogenation system with automation for vegetable oils, utility equipments and services.

### REFERENCES

Plants supplied by our technology partners in Andreotti Impianti, Italy.

Company	Country	Capacity
UNIGRA' S.p.A.	ITALY	180 TPD
RIVIERA	YUGOSLAVIA	20 TPD
THE VEGETABLE FOODS GO LTD	INDIA	40 TPD
CRYSTAL CHEMICAL LTD	PAKISTAN	30 TPD
ALEMADAR KIMYA ENDUTRISI A.S.	TURKEY	60 TPD
COTONTCHAD	CHAD	60 TPD
MARHAB OIL MILLS GO LTD	SUDAN	20 TPD
CIA ESTEARINA FARANAENSE	BRAZIL	40 TPD
DAL' MAS S/A	BRAZIL	20 TPD
INDUSTRIAL QUIMICA GIRARDI S/A	BRAZIL	20 TPD
CERALIT S/A	BRAZIL	40 TPD
"IMBASA" IND. DE MAMONA	BRAZIL	60 TPD
DE BATIA BRASWEY S/A	BRAZIL	100 TPD
ACEITERA CENTROAMERICANA S.A.	COSTA RICA	20 TPD
INDUSTRIAS LAVADOR C POR A	DOMINICAN	80 TPD
REPUBLIC INDUSTRIA ACEITERA		
HONDURENA S.A.	HONDURAS	40 TPD
PAVLOS N. PETTAS	GREECE	20 TPD
ALIMAS	ITALY	120 TPD
*PAVLOS N. PETTAS	GREECE	60 TPD
DANEH TALAEI AMOL VEGETABLE		
OIL MANUFACTURING COMPLEX	IRAN	150 TPD

\* REPEAT ORDER