



Recent Advances in Miscella Refining Technology

DR. VIVEK VADKE

EXTECH PROCESS ENGINEERING LLP, THANE

Advantages of Miscella Refining over Traditional Refining

- ▶ Low oil losses
- ▶ Light colour oil
- ▶ No washing – no pollution
- ▶ Soapstock (after desolventising) easy to handle and sell

Miscella Refining – salient features

- ▶ **Low oil loss** – large density difference, very low viscosity

Miscella Conc.	Viscosity cP	S.G.	S.G. difference
100 % (Oil)	20	0.90	0.10
80 %	15	0.83	0.17
65 %	10	0.78	0.22
50 %	6	0.75	0.25

Miscella Refining – salient features

- ▶ **Light colour oil** - impurities removed prior to distillation
 - ▶ Red pigment removed
 - ▶ Colour fixation avoided
 - ▶ **Red 0.8** units (1/4 inch cell)

Process Options

▶ Expander operation – with or without oil drainage

	(a) Expander	(b) Expander with oil drainage
Miscella Conc. At Extractor outlet	20 – 22 %	24-26 %
Miscella Conc. After Economiser	50 %	Economiser 1 : 65 % Economiser 2 : 80 %
Saving of Steam		40 kg/T meat
Res. Oil in meal	1.0 %	0.8 %

Soapstock Desolventising

- ▶ Soapstock from Separator
 - ▶ TFM 38 %
 - ▶ **Hexane 16 – 18 %**
 - ▶ Hexane loss; safety hazard in storage and soap-making
- ▶ **Desolventising** - Scraped surface heat exchanger
 - ▶ Flash Under vacuum
- ▶ **Desolventised Soapstock** - **Hexane 0.5 %**, **TFM 42 – 44 %**
 - ▶ **Hexane recovery**
 - ▶ **Safe to handle**
 - ▶ **Easy to sell**

Meal Products

- ▶ Meal 38 % protein
- ▶ Meal 44 % protein
- ▶ Meal 50 % protein
- ▶ Low-protein pellets (Animal Feed)
 - ▶ Utilises all meal, hulls, and soapstock
 - ▶ 25 % Protein
 - ▶ 2- 3 % Fat