

PRE-TREATMENT OF GLYCERINE FROM BIODIESEL PRODUCTION

HARRISON LAU LIK NANG and CHOO YUEN MAY



MPOB INFORMATION SERIES • ISSN 1511-7871 • JUNE 2009

MPOB TT No. 429

C rude glycerine is a by-product produced from biodiesel plants via the conventional transesterification process. Typically 10% to 12% (by weight) of crude glycerine is produced for every tonne of biodiesel produced. Crude glycerine normally contains 50% to 60% of glycerine depending on the process. The main impurity in crude glycerine which needs to be further removed is metal-soap (e.g. Na-soap or K-soap). The soap is unintentionally produced during the transesterification process, and the

amount of soap in crude glycerine can range from 8% to 15%. MPOB has developed a process for treating crude glycerine for the production of a technical grade glycerine with a glycerine content of 85%.

The first MPOB glycerine pre-treatment plant has been installed and commissioned at Carey Island, Klang by Sime Darby Biodiesel Sdn Bhd (formally known as Golden Hope Biodiesel Sdn Bhd) (Figure 1).



Figure 1. Glycerine pre-treatment plant located at Sime Darby Biodiesel Sdn Bhd, Carey Island, Klang (2008).

ISSN 1511-7871



9 771511 787001

Malaysian Palm Oil Board, Ministry of Plantation Industries and Commodities, Malaysia

P. O. Box 10620, 50720 Kuala Lumpur, Malaysia. Tel: 03-87694400 Website: www.mpob.gov.my Telefax: 03-89259446



TECHNOLOGY

Crude glycerine is treated with acid to split the metal-soap into fatty acids. The glycerine phase is separated from the fatty acid layer and then purified.

TECHNICAL GRADE GLYCERINE

The technical grade glycerine produced has the specifications shown in *Table 1*.

TABLE 1. TECHNICAL GRADE GLYCERINE PRODUCED FROM A BIODIESEL PLANT

Parameter	Weight (%)
Glycerine content	85 (minimum)
Salt content	5 (maximum)
MONG (matters organic non-glycerol)	2 (maximum)
Water	10-15
Visual appearance	Transparent yellowish liquid

COST ESTIMATE

A full-scale 25- t day⁻¹ plant complete with a methanol recovery system will cost RM 1.2 million. A customized design is available to reduce the investment cost to best suit the requirements of the existing biodiesel plant.

For more information kindly contact:

Director-General
MPOB
P. O. Box 10620
50720 Kuala Lumpur, Malaysia.
Tel: 03-87694400
Website: www.mpob.gov.my