

New method for direct oxidation of olefins*

The innovation

Background Information

Epoxides are obtained from petrochemical precursors and play a decisive role as starting materials for plastics, solvents and fine chemicals with an annual market volume of 10-20 bn EUR. Currently more than 10 m tons of epoxides are produced worldwide.

The starting materials (ethylene and propylene) for the epoxides are obtained from crude oil via steam cracking in large quantities. To date the market is dominated by ethylene oxide and propylene oxide with a market share of more than 98 %. This is due to the fact that these are currently the only epoxides which can be obtained in industrial scale by direct oxidation of olefins. IPB is offering a new technology which can be used to oxidize not only ethylene and propylene, but also other industrial scale olefins obtained from crude oil. Some of the resulting epoxides have a higher value and better properties than ethylene oxide or propylene oxide. Especially butylene oxide can replace propylene oxide in many applications. There are currently more than 50 patents describing possible applications, but as to date there is no cost effective process for the production the applications are limited to niche markets.

Butylene oxide is accessible with our new process from raffinate 2 obtained in large quantities from crude oil.

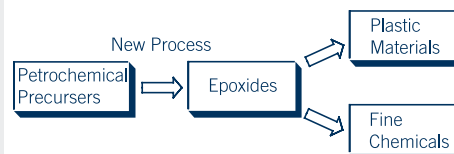
Business model

Together with international specialists for engineering and plant construction IP Bewertungs AG is offering the know how, patents, business model and industrial scale plants for the production of butylene oxide from raffinate 2. Based on our market studies butylene oxide can replace propylene oxide in many applications.

We are offering to set up a production plant for butylene oxide with a capacity of 200'000 tons per annum. It is planned to realize the setup in several phases to minimize the risk for the investors.

With the new process the production costs are assumed to be in the range of propylene oxide or below. Even if butylene oxide is a higher value product we are calculating with an achievable market price similar to propylene oxide. An annual turnover of 300-400 m EUR may be achieved with butylene oxide.

Beside the revenues from the production of butylene oxide further revenues can be realized by rise in value via oxidative separation of raffinate 2.



Advantages at a glance

- Cost effective production of epoxides from olefins
- Direct and catalyst-free oxidation of the olefin
- Multifunctional process (plant) is possible
- Very cost-effective process for many widely used epoxides
- New epoxides are accessible
- Easy technical feasibility for effective production in flow reactor

To acquire a licence for this new technology, please don't hesitate to contact us!

Keywords

- Epoxide
- Oxirane
- Olefin
- Petroleum
- Natural gas
- Epoxidation
- Epoxidation of olefins
- Direct oxidation
- Ethylene oxide
- Propylene oxide
- Ozone
- Epoxide resins

Areas of application

- Direct oxidation of olefins

Patent status

The invention is filed internationally and partially granted. It is owned by ZYLUM Beteiligungsgesellschaft mbH & Co. Patente II KG. The application was filed in September 2000.



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