

METATHESIS OF MULTIUNSATURATED FATTY ACIDS METHYL ESTERS

W. WALISIEWICZ-NIEDEBALSKA, B. KOSMACINSKA

Industrial Chemistry Research Institute, 01-793 Warszawa,
Poland

ABSTRACT

Reaction of metathesis of methyl linoleate was studied. Wolfram hexachloride WCl_6 was used as catalyst together with tetraethyllead Et_4Pb added as cocatalyst. Chlorobenzene and hexane were used as solvents.

INTRODUCTION

Olefins and esters of dicarboxylic acid containing unsaturated bond $C = C$ are the products of metathesis reaction of esters of multiunsaturated fatty acids - linoleic and linolenic.

Presence of some unsaturated bonds in carbon chain gives facilities for forming of other reaction products, for example cyclic compounds.

The main purpose of work was receiving of products, especially diesters, with maximum content of unsaturated bonds in a carbon chains and minimal quantity of the compounds formed as the products of subsequent reactions.

In the first stage of a work metathesis reaction of methyl linoleate was realized.

EXPERIMENTAL

Methyl ester of linoleic acid (Merck) was a raw material. Wolfram hexachloride was used as a catalyst, and tetraethyllead as cocatalyst. Chlorobenzene and hexane were solvents.

The mixture obtained after reaction was analysed with methods: GC, GC/MS and IR.

The grade of conversion, selectivity and content of geometrical isomers were determined.

RESULTS

The grade of conversion of metathesis of methyl linoleate achieves 0,7 - 0,8.

In the mixture obtained after metathesis reaction the following substances were detected and determined:

- olefins $C_{12} - C_{18}$
- methyl esters of monocarboxylic acids $C_{15} - C_{21}$
- methyl esters of dicarboxylic acids $C_{18} - C_{24}$
- trans isomers