

Title: **Synthesis, purification and analysis of impurities R, D and V from the TCMTB process**

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Laboratoris Miret S.A. is one of the leading manufacturers of TCMTB in Europe. TCMTB is one of the most common fungicides used in leather preservation in leather industry. Leather is especially susceptible to be attacked by bacteria and fungi in the tanning process. To avoid this biodegradation, different types of biocides are used such as bactericides and fungicides.

This project is divided in two parts. In the first one a bibliographic review concerning the different synthesis routes of TCMTB has been done. It is well known that there are two main routes with two synthetic steps each one. Both routes start using bromochloromethane as a reagent and change the addition order of the other two main reagents to obtain TCMTB.

The second part of the project is focused on the synthesis of the impurities produced during the TCMTB synthesis. These main process impurities are called: Impurity R, Impurity D and Impurity V. An optimization of the current synthetic methods has been performed. To achieve that aim, the amounts of reagents and solvents have been modified and set. Furthermore, some reagents and solvents have also been replaced. All these changes have afforded an improvement of yields and the overall times of the synthetic processes have been shortened.

Keywords: biocides, fungicides, TCMTB, process impurities, leather, tanning.