



2nd year ENSCL

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SUBJECT N°1

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Colored glasses: synthesis and characterization

Early glass derived its colour from impurities that were present when the glass was formed. In addition to natural impurities, glass can be coloured by purposely introducing minerals or purified metal salts (pigments).

The obtained colours can be different depending upon the nature and amount of glass pigments used. Examples of popular coloured glasses include ruby glass (invented in 1679, using gold chloride) and uranium glass (invented in the 1830s, glass that glows in the dark, made using uranium oxide). Different colors may also be prompted by varying the heating treatment during the glass manufacturing process.

The present work aims to synthesise and characterize coloured glasses. The first part is a bibliographic searching focusing on: - history of coloured glass (in relation to technological aspect and applications) - structure and properties of glass adding with transition metals or not - synthesis methods of coloured glasses - physicochemical analysis of colored glasses.

The students will support on the results of their bibliographic searching to define the experimental parameters that will be used during the practical part of their work (composition of the studied glasses, synthesis and characterization methods ...).