

## The Chemical Industry of Paulínia: a rich context for education

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### Introdução

Industrial environments have been focused as a source of learning that illustrates the relevance of chemistry and its impact on our society [1]. Our Faculty of Chemistry is located in an economically promising region for the Brazilian chemical industry and we use this context as a strategy to enhance the interest of the students to chemistry, its applications and to emphasize the importance of a responsible actuation for a professional chemist. In recent years there is a growing awareness concerning the need to bridge the gap between academy and industry. We present the results of one of our undergraduate courses that seems to contribute to this connective purpose.

### Resultados e Discussão

We studied this subject through supervised independent studies among our second-year students, using the STS (Science, Technology & Society) and cooperative learning approaches. Each student chose, among near forty possibilities, one chemical company and selected one or two products from their portfolio. They were asked to: a) identify the chemical principles related to the chosen compounds, b) write the reactions involved in these processes, c) present a simplified scheme for their production, d) correlate their molecular structures with their properties, and e) evaluate the impact of a given product or process on the economy and environment of our region. During this one-year course the students had the opportunity to read and to discuss about the trends on the chemical industry, the increasing importance of the biotechnology methods for the production of chemical products and their biodegradation, to develop writing and communication abilities by answering questionnaires, writing essays, oral presentations, and elaborating a web page with their discoveries. This last activity was carried out simultaneously during the course about interactive methods in chemistry where they have the opportunity to model some structures of the selected compounds. In addition, one of the main purposes of this class was to create a context for the development of R & D skills, the abilities recognized as essentials for professional chemists [2]. Among the cases studied we will present the results concerning two of them, namely, the production of thermoplastic polymers,

polystyrene and polybutadiene, of special solvents, with emphasis on the role of the catalysts in the petrochemical industry. The student's perceptions concerning the whole course were evaluated through a final assay. Among the most positive comments were the satisfaction for identifying and comprehending the main functions of the chemical principles currently taught in our courses, in the production and application of chemical compounds.

### Conclusions

It was possible to experience in our classes that the industrial park of Paulínia offers many exciting study cases to the chemical education. These independent studies promoted motivation for learning and awakening for research among our students.

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To our Students and  
Instituto de Educação Superior São Paulo

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