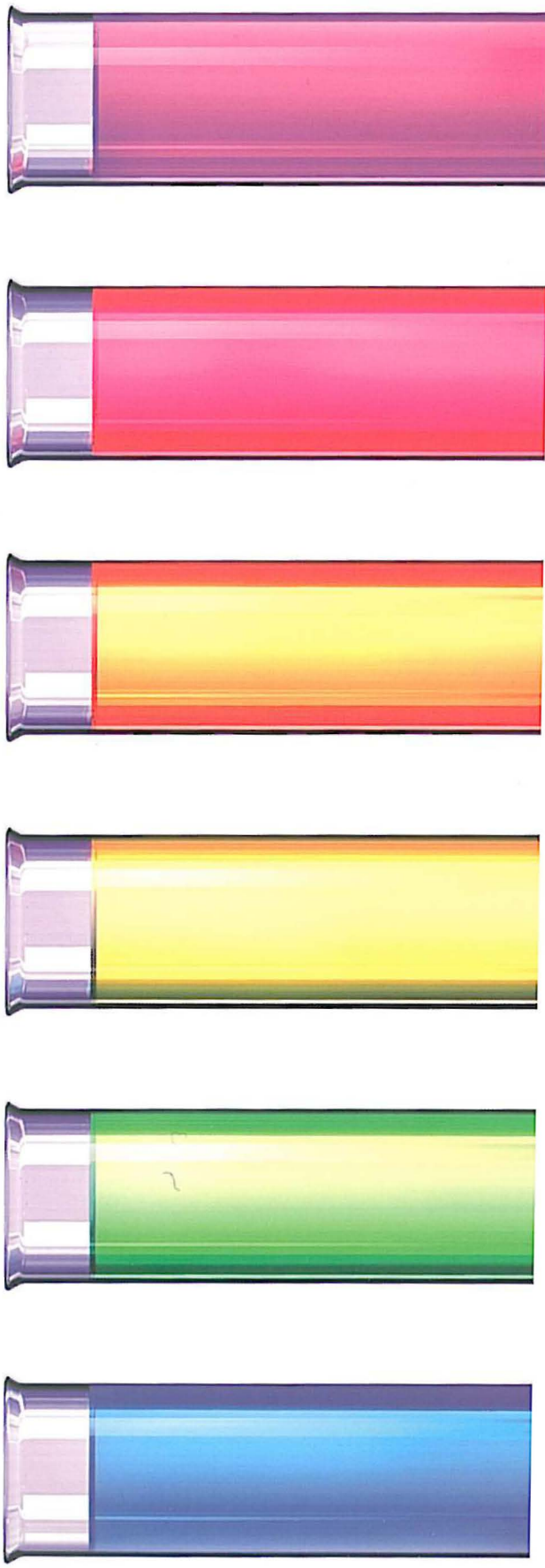
XVII Encontro
GALEGO PORTUGUÉS DE QUÍMICA



Ano Internacional da
QUÍMICA
2011

XVII ENCONTRO GALEGO-PORTUGUÉS DE QUÍMICA

Pontevedra, 9 al 11 de noviembre de 2011

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Polymer Laboratory: An educational approach

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Polymers are part of our everyday lives. They assume different forms such as plastics, fibres, foams and elastomers. Its prevalence in modern society and impact on several industrial sectors is well recognized and motivates the development of different educational tools to support the demonstration of polymer chemistry principles, very often hard to rationalize.

This work aims to present the work developed within the science communication project CV/PVI/1386-Laboratório de Polímeros (Polymer Laboratory), financed by Ciência Viva (2006-2008). Three modules have been developed concerning the following main thematics: (1) Polymer concepts; (2) Polymer synthesis and (3) Polymer properties. They were designed to be devoted to a wide target public including students from primary and secondary schools to undergraduate levels, and general society.

Several demonstration/experimental kits were developed. Concepts such as polymer architecture (linear, branched and crosslinked) and polymer synthesis procedures (step *versus* chain growth polymerization) can be demonstrated by using the "Kit-models". Here the student is able to create several models representative of the concepts to be illustrated. Synthesis examples include the preparation of linear polymers to networks. In the first case Nylon 6,6 synthesis is proposed and, in the second one, polyurethane foam (chemical crosslinking) and a PVA polymer slime (ionic crosslinking) can be experienced. Among polymer properties, several demonstrations can be mentioned: (1) Dissolution *versus* swelling, (2) Swelling volume *versus* crosslinking degree, (3) Hydrophobic *versus* hydrophilic polymers and (4) Polymer identification.

Following the experience acquired with the former project, the work has continued, expanding the developed concepts. The demonstration/experimental kits were improved, an identification logo was created, and the production of a book of protocols and a web page are currently in course.

Acknowledgments

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