



THE PREPARATORY PROBLEMS FROM THE INTERNATIONAL CHEMISTRY OLYMPIADS

Series 1

**43rd – 47th IChOs
2011 – 2015**

Edited by Anton Sirota

IUVENTA, Bratislava, 2016

THE PREPARATORY PROBLEMS FROM THE INTERNATIONAL CHEMISTRY OLYMPIADS, Series 1
The preparatory problems from the 43rd – 47th IChOs

Editor: Anton Sirota

IChO International Information Centre, Bratislava, Slovakia

ISBN 978-80-8072-167-1

Copyright © 2016 by IUVENTA

You are free to copy, distribute, transmit or adapt this publication or its parts for unlimited teaching purposes, however, you are obliged to attribute your copies, transmissions or adaptations with a reference to "The Competition Problems from the International Chemistry Olympiads, Volume 1" as it is required in the chemical literature. The above conditions can be waived if you get permission from the copyright holder.

Issued by IUVENTA in 2016
with the financial support of the Ministry of Education of the Slovak Republic

Number of copies: 200
Not for sale.

International Chemistry Olympiad
International Information Centre
IUVENTA
Karloveská 64
84258 Bratislava 1, Slovakia
Phone: +421-907-473367
E-mail: anton.sirota@stuba.sk
Web: www.icho.sk

P r e f a c e

It is stated in paragraph 10 of the Regulations of the International Chemistry Olympiad that:

“The organizer distributes a set of preparatory tasks written in English to all participating countries in January of the competition year. The preparatory tasks are intended to give students a good idea of the type and difficulty of the competition tasks, including safety aspects. SI units should be used throughout the preparatory tasks.

The total number of theoretical and experimental tasks in the set of preparatory problems cannot be lower than 25 and 5, respectively.”

The preparation of the preparatory problems became a part of the organizers’ duties from the year 1976.

This publication contains the preparatory problems from the latest five International Chemistry Olympiads (IChO) organized in the years 2011 – 2015. Not less than 139 theoretical and 36 practical preparatory problems were prepared and published by the organizers of the mentioned IChOs in the last five years. In the elaboration of this collection the editor had to face certain difficulties because the aim was not only to make use of past recordings but also to give them such a form that they may be used in practice and further chemical education. Consequently, it was necessary to make some corrections in order to unify the form of the problems. One must take into consideration that not less than 87 authors came into contact with the presented preparatory problems and, naturally, it left some traces on the composition and presentation of the text. However, some small formal corrections did not concern the contents and language of the problems. And, therefore, the responsibility for the scientific content and language of the problems lies exclusively with the authors and organizers of the particular International Chemistry Olympiads. Recalculations of the solutions were made in some special cases only when the numeric results in the original solutions showed to be obviously not correct. Although the numbers of significant figures in the results of the problems do not obey sometimes the criteria generally accepted, they were left without changes.

In this publication SI quantities and units are used. Only some exceptions have been made when, in an effort to preserve the original text, the quantities and units have been used that are not SI.

This review of the preparatory problems should serve to both competitors and their teachers as a source of further ideas in their preparation for the IChO competitions. For those who have taken part in some of these International Chemistry Olympiads the collection of the problems could be of help as archival and documentary material. The series of the preparatory problems will continue with its second part in which preparatory problems from the other International Chemistry Olympiads will be collected.

When reading or studying the preparatory problems one must admire the effort and work of many of those authors whose names are accompanied with the presentation of the problems. We wish to all who will organize and attend the future International Chemistry Olympiads, success and happiness.

Bratislava, December 2015

Anton Sirota, editor