

IUPAC Project Progress Report

Project Number: 2002-037-1-500

Project Title: Solubility data of compounds relevant to human health. Solubility of halogenated aromatic hydrocarbons

Task Group Leaders: Masakazu Makino, Ayako Goto, and Rensuke Goto

Report:

1. Current status of project:

At first, we started to compile the aqueous solubility data for polychlorinated biphenyls (PCBs) among the halogenated aromatic hydrocarbons, because much attention has been paid to these chemicals as environmental contaminants. The solubility study for halogenated aromatic hydrocarbons presented by M. Makino has been included. For two years, we have compiled the aqueous solubility data of PCBs since **1949** and have started to evaluate them.

2. Progress relative to milestones:

It is well known that the number of PCB congeners is 209. We have compiled about 40 – 50 % of the solubility data including those of biphenyl. We have paid special attention to the solubility of chlorinated biphenyl isomers.

3. Difficulties encountered (or concerns):

a) We have troublesome problems to evaluate them.

The number of data investigated until today was too small to evaluate them on the basis of statistical methods. The values tended to depend upon the respective experimental systems.

b) We have understood recently that it is reasonable to consider that the aqueous solubility data should be classified into two categories, liquid-liquid and solid-liquid systems, because the melting points of some PCB are near room temperature. Then, this project should be concerned with liquid-liquid and solid-liquid systems.

4. Projected completion date (documents ready for external review):

We would like to finish this project in about one or two years.

5. Intended outputs and the dissemination plan for this project:

6. Work on this project has identified issues and/or opportunities for related projects:

We have pointed out that the aqueous solubility data of PCBs extend over two categories, liquid-liquid and liquid-solid systems, as described above. Then, our project belongs not only to the liquid-liquid but also to the solid-liquid activities of SSED.