climate. In order to formulate material and energy exchange models, it is crucial to understand the coupling of evaporation and crystallization processes within the droplets transported into the upper atmosphere. Climate changes from past time periods are manifested in the complex evaporitic deposition patterns, which are interpreted on the basis of the solid-liquid equilibria of the multicomponent oceanic salt system.

Presently two volumes are under way: 1) binary systems containing sodium, potassium, and ammonium sulfate; and 2) magnesium chloride-water and calcium chloride-water and their mixtures.

**3) Solubility Data Related to Industrial Processes**

Gas solubility is one of the fundamental properties of various gas absorption processes in the chemical industry. The removal of carbon dioxide from gas mixtures is a necessary and expensive step in many processes. It is of particular importance, for example, in the purification of ammonia synthesis gas, in the synthesis of liquid fuels from coal, and in the upgrading of fuel gases. Absorption with suitable solvents provides a convenient method for the removal of $CO_2$. In enhanced oil recovery, carbon dioxide is used to displace the hydrocarbons from the reservoir and the solubility of $CO_2$ in the hydrocarbons is important to ensure that miscibility occurs, with a concomitant increase in the oil recovered. In addition, processing using supercritical fluids is an increasingly important area worldwide. Systems that employ carbon dioxide as the solvent are particularly attractive as $CO_2$ is environmentally friendly.

The availability of accurate and reliable information on the equilibrium solubility of $CO_2$ in absorbing solvents as a function of temperature and pressure is of utmost importance in the rational design of gas-treating units. Such data will allow more economical construction and more nearly optimum operation of gas-treating plants. Thus, compiled and evaluated data on the solubility of $CO_2$ in various industrially important aqueous solvents and solvent mixtures are very much sought after.

Presently, three volumes are in preparation: 1) $CO_2$ in aqueous nonelectrolyte solutions; 2) $CO_2$ and the lower alkanes at pressures above 2 bar: part 1, methane to butane; and 3) solids and liquids in supercritical $CO_2$.

Because of the diversity of industrial processes sometimes pending problems have to be tackled when there is sufficient individual expertise and interest from contributors. Thus, volume four concerning the solubility of lead sulfate is in preparation. Lead sulfate in aqueous and nonaqueous solvents continues to present problems in the design and manufacture of the still very important lead-acid batteries.

Acetonitrile is one of the best extractive distillation solvents for separation of close boiling paraffinic and olefinic hydrocarbons. As the chemical process industry seeks more efficient and less energy-intensive separation techniques, liquid-liquid extraction based on selective solubilities is becoming more common. Volume five, which is being produced, covers this issue.

*Reviewed by Heinz Gamsjäger, chairman of Subcommittee on Solubility and Equilibrium Data.*

www.iupac.org/divisions/V/502

## Concepts and Structure for Requests in Clinical Laboratories

Laboratory medicine measurements and other examinations are made in the context of requests from physicians and reports back to the physicians. The request for measurements and examinations is typically embedded in a request to the laboratory phrased in the medical language of the requester and using conceptual dimensions and granularity levels appropriate to a particular patient's case and the discipline of the requester. Requests usually are formatted within the framework of an electronic healthcare record system (or as a paper request) and are transmitted using an electronic health care information system carried via a communication standard protocol (i.e., HL-7 or Med-RPT). In this project, a solution for the problem of dealing with the request concept in at least three contexts—healthcare information system, communication standard, and clinical laboratory—will be sought.

The strong context dependency of the part of the request containing the medical information and questions asked is in contrast to the part dealing only with measurements or other examinations, but the two are clearly related. The project is set up to define concepts and outline structures for requests in laboratory medicine, taking into consideration the former commission's nomenclature and syntactic rules that are meant to promote and maintain scientifically and conceptually sound ways of expressing the outcome of measurements and other examinations in laboratory medicine.

*For more information, contact the Task Group Chairman Urban Forsum <urban.forsum@ihm.liu.se> or visit the Nomenclature, Properties, and Units in Laboratory Medicine subcommittee Web page at <www.iupac.org/divisions/VII/VII.C.1>.*

www.iupac.org/projects/2001/2001-058-1-700.html

## Properties and Units for Transfusion Medicine and Immunohaematology

Unambiguous expression of properties will assist in fulfilling safety and legal requirements in the handling of

blood products intended for transfusion and organs intended for transplantation. The C-NPU (Committee on Nomenclature, Properties and Units)—maintained as a joint activity of the International Federation of Clinical Chemistry and Laboratory Medicine (IFCC) and IUPAC—has as its main task to promote and maintain scientifically and conceptually sound ways of expressing the outcome of measurements and other examinations in laboratory medicine. The NPU coding scheme and vocabulary, based on the international system of units, concepts theory, and high-level international standards, is the main outcome and should be the cornerstone for expressing measurements within international communication standards. Thus, the task in this project is to work out properties and units for transfusion medicine and tissue typing based on the former C-NPU concepts and syntactic rules.

It is a characteristic of the fields of transfusion medicine and tissue typing that the properties examined may involve both nominal, ordinal, differential, and rational scales. Thus, the project will establish the metrological and logical basis for expressing such properties. In addition, the necessary international coding scheme identifiers and code values will have to be chosen as required by interlaboratory transmission between databases. In this respect, active collaboration and/or endorsement by the International Society of Blood Transfusion will be sought.

*For more information, contact the Task Group Chairman Urban Forsum <urban.forsum@ihm.liu.se>*

www.iupac.org/projects/2001/2001-059-1-700.html

## Global Use of the C-NPU Concept System for Properties in Toxicology

The objective of this project is to work out properties and units for global use of the C-NPU (Committee on Nomenclature, Properties and Units) concept system and syntactic rules for properties in toxicology.

The C-NPU, maintained as a joint IFCC-IUPAC activity for two decades, has as its main task to promote and maintain scientifically and conceptually sound ways of expressing the outcome of measurements and other examinations in laboratory medicine. The NPU coding scheme and vocabulary, based on the SI system, concepts theory, and high-level international standards, is the main outcome and should be the cornerstone for expressing measurements within international communication standards.

During the first meeting (3-4 August 2002), a first draft by J. H. Duffus was discussed that involved properties in toxicology based on the general structure elaborated by C-NPU. The C-NPU concept system was proven to be appropriate for that purpose as demonstrated by a large number of typical examples. For the next meeting (5-6 December 2002), a draft comprehensive list will be prepared for discussion and after corrections it will be distributed for comments among appropriate organizations and individual specialists.

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www.iupac.org/projects/2001/2001-066-1-700.html