- Determined to honor the spirit of international, regional, national, and subnational laws and policies concerning biological and molecular diversity as well as intellectual property rights
- Committed to ensure fair and equitable sharing of benefits arising from the sustainable utilization of natural resources
- Dedicated to the fostering of research, and the accumulation and dissemination of all knowledge, especially at the molecular level
- Dedicated to the enhancement of the scientific and technological expertise and resources of developing countries

IUPAC subscribes to the following views:

Authorization of Cooperation

Following an agreement to cooperate, all material exchange, early steps in innovation and commercial cooperation must be conducted under the auspices of relevant authorities.

All countries should facilitate the rapid and efficient formulation of contracts between interacting partners based upon their legal requirements.

Interests of Cooperating Partners

Academic interaction is directed at generating fundamental scientific knowledge in the first instance. It has to be recognized that such basic knowledge can become the subject of translation into products and services with the potential to bring about economic benefits.

There is a genuine interest of all partners in the translation of scientific knowledge into commercially viable products and services and in the fair sharing of ensuing benefits.

All of the cooperating partners are interested in fast and simple mechanisms regulating the common activities, and in avoiding a slow and complex process.

The bioaffluent countries are interested in enhancing their technical training, in improving their facilities as well as in safeguarding sustainable management of their natural resources and harnessing biodiversity for economic development.

Partners from high-technology regions are motivated by the search for novel molecular structures and the underlying biomolecular chemistry made available by the partnership.

All partners should appreciate each other's genuine interests and work in a spirit of mutual understanding, common accountability, and trust.

Authorities in bioaffluent countries are expected to invest in infrastructure and mechanisms for innovation facilitating the emergence of small- and medium-sized R&D enterprises (SMEs), as they constitute the main business partners for globally active companies.

Bioaffluent countries are expected to offer the biota within their jurisdiction for scientific investigation. They are also expected to contribute traditional information on empirical correlations between biocomponents and their potentially exploitable functions.

At all times of the collaboration, bioaffluent countries remain the owners of material from biota and of contributed information, but are obliged to enter into benefit-sharing agreements with their partners prior to commercialization.

High-technology partners are expected to provide modern technical expertise for the isolation, identification, evaluation, and eventual generation of molecular libraries of biocomponents judged to be of value. In many cases, they contribute their share of financial commitment as well, from both private and public sources.

High-technology partners are expected to provide for transfer of appropriate technology to parties in bioaffluent countries.

Bioaffluent countries are expected to contribute technical manpower and field labor to the project.

All cooperating parties are expected to contribute appropriately to the financial investments supporting the project.

Obligations

The terms of any contract constitute the basis of the formal obligations for all parties.

The partners should insure free flow of scientific information where possible. They should collaborate in any publication of scientific results, after due protection of economic interests of any partner and guided by the clauses of eventual patent laws.

Benefit sharing

Collaborating partners are expected to share fairly and equitably the benefits arising from the utilization of bioresources.

www.iupac.org/publications/pac/2002/7404/7404x0697.html

Naming of New Elements (IUPAC Recommendations 2002)

by W. H. Koppenol

Pure and Applied Chemistry, Vol. 74, No. 5, pp. 787-791 (2002)

The recent debate on the naming of the transfermium elements has centered on two issues: (1) priority of discovery and (2) the right of discoverers to suggest names. This paper proposes a procedure to name new elements that clarifies these issues. After the discovery of a new element is established by a joint IUPAC–IUPAP Working Group, the discoverers are invited to propose a name and a symbol to the IUPAC Inorganic Chemistry Division. Elements can be named after a mythological concept, a mineral, a place or country, a property, or a scientist. After examination and acceptance by the Inorganic Chemistry Division, the proposal follows the accepted IUPAC procedure and is then submitted to the IUPAC Council for approval.

www.iupac.org/publications/pac/2002/7405/7405x0787.html

"Heavy Metals"—A Meaningless Term? (IUPAC Technical Report)

by J. H. Duffus
Pure and Applied Chemistry, Vol. 74, No. 5, pp. 793-807 (2002)

Over the past two decades, the term "heavy metals" has been widely used. It is often used as a group name for metals and semimetals (metalloids) that have been associated with contamination and potential toxicity or ecotoxicity. At the same time, legal regulations often specify a list of "heavy metals" to which they apply. Such lists differ from one set of regulations to another and the term is sometimes used without even specifying which "heavy metals" are covered. However, there is no authoritative definition to be found in the relevant literature. There is a tendency, unsupported by the facts, to assume that all so-called "heavy metals" and their compounds have highly toxic or ecotoxic properties. This has no basis in chemical or toxicological data. Thus, the term "heavy metals" is both meaningless and misleading. Even the term "metal" is commonly misused in both toxicological literature and in legislation to mean the pure metal and all the chemical species in which it may exist. This usage implies that the pure metal and all its compounds have the same physiochemical, biological, and toxicological properties, which is untrue. In order to avoid the use of the term "heavy metal," a new classification based on the periodic table is needed. Such a classification should reflect our understanding of the chemical basis of toxicity and allow toxic effects to be predicted.

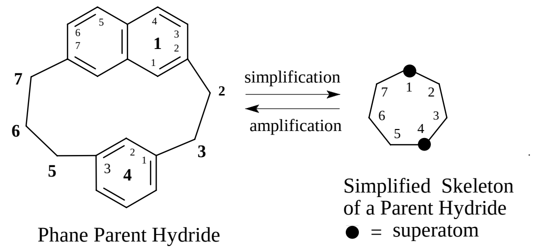
www.iupac.org/publications/pac/2002/7405/7405x0793.html

Phane Nomenclature. Part II. Modification of the Degree of Hydrogenation and Substitution Derivatives of Phane Parent Hydrides (IUPAC Recommendations 2002)

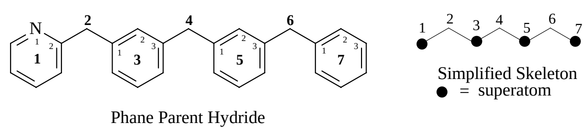
by H. A. Favre, D. Hellwinkel, W. H. Powell, H. A. Smith, Jr., and S. S.-C. Tsay
Pure and Applied Chemistry, Vol. 74, No. 5, pp. 809-834 (2002)

Phane nomenclature is a new method for building names for organic structures by assembling names that describe component parts of a complex structure. It is based on the idea that a relatively simple skeleton for a parent hydride structure can be modified by an operation called "amplification," a process that replaces one or more special atoms (superatoms) of the simplified skeleton by multiatomic structure(s).

Examples:



Simplified skeletal name: cycloheptaphane
Phane parent hydride name:
1(2,7)-naphthalena-4(1,3)-benzenacycloheptaphane



Simplified skeletal name: heptaphane
Phane parent hydride name:
1(2)-pyridina-3,5(1,3),7(1)-tribenzenaheptaphane

The multiatomic structure is a fully saturated or mancude ring or ring system. A mancude ring or ring system contains the maximum number of noncumulative double bonds. In the amplification operation, each superatom is replaced by an amplificant denoted by an "amplification prefix" attached to a stem called a "simplified skeletal name." The latter ends with the term "phane" and is formed according to the principles for deriving names of saturated hydrocarbons. Accordingly, all of the atoms implied by the skeletal name, except for those replaced by amplification prefixes are, by convention, saturated carbon atoms. An amplification prefix is derived from the name of the corresponding cyclic parent hydride by the addition of the terminal letter "a" with elision of a terminal vowel of the parent hydride name, if present. Phane prefixes thus resemble the prefixes, such as "oxa," "aza," etc., that indicate replacement of a single atom, usually a carbon atom, by a different atom.

The locants in front of the parentheses in the phane parent hydride name identify the positions of the superatoms in the simplified skeleton that are replaced by the ring structure specified by the amplification prefix immediately following. By the same token, they also identify the positions of the rings and ring systems in the phane parent hydride. These locants are determined by