

Report of the IMA Mineral List Committee, 2008

Current members of the committee include:

Marco Ciriotti
Robert Downs (chair)
Frédéric Hatert
Pat Mooney
Ernie Nickel

A website exists, located at www.rruff.info/ima, that interactively displays the list of all the IMA CNMNC minerals recognized as valid species with accessory information and links. It is actually a database and JAVA program that is downloaded and used through a browser. The site, as a whole, receives about 100,000 queries per week. The duties of the IMA Mineral List Committee include managing the content of this website and its functions. A professional programmer is funded by the RRUFF project to write the computer code for the website. The emphasis over the past year includes items discussed below.

1. Managing the definitive list of mineral names and their chemical compositions. Our highest priority is to ensure that this information is perfect. The effort primarily involves two components, a) identifying new mineral information, b) keeping track of changes to the existing minerals. The most difficult aspect of these two components is finding the information. Changes to the database are easily accomplished and only take a few moments to complete. New mineral information is found at the CNMNC website in the form of PDF documents that are posted from time to time. The CNMNC document includes IMA approval number and sufficient information to permit matching the approval number with the publication of the description paper. It is stated that the CNMNC document represents the last action of the commission: "NO OTHER INFORMATION WILL BE RELEASED BY THE COMMISSION". There does not appear to be an IMA mechanism for identifying and determining when the papers are published, and this seems to depend on extensive searching and a component of luck. Ciriotti and Mooney play important roles in this task. A mechanism should be established to aid in publication tracking.

Keeping track of changes to existing minerals is much more difficult. At the moment it is largely accomplished through Ernie Nickel's PDF documents that are posted at the CNMNC website, and discussions primarily between Hatert, Downs and Nickel. This method is not very efficient and requires an enormous effort by all involved. Downs spends a significant time each day comparing the existing IMA mineral list against Nickel's document, identifying differences, and searching the literature for the documentation that support the changes. When doubt arises, then Hatert and Nickel are consulted. There is no doubt that the effort that Nickel puts into his document is also enormous, and currently there is duplication of effort.

In regards to the list of names and their spelling, the IMA mineral list can be considered up-to-date and accurate in that the posted chemical formulas are in agreement with the Nickel document. However, there are a significant number of scientific errors in these "official" chemical formulas that are difficult to discover.

- In the next year, software will be created to analyze all the chemical formulas for charge balance problems, and the formulas that violate charge balance will be examined and corrected when possible. This is probably the best that the committee can do to ensure that the list of minerals is scientifically accurate.
2. A goal of the committee is to identify the original descriptive articles for each mineral, and obtain and post the associated PDF. Copyright laws permit the posting of literature without permission if the literature is older than 72 years. In addition, a concerted effort has been made to obtain permission from the publishers to post the PDFs for free and open access. Permission has been obtained from the journals of several of the mineral societies, including the American, British, Canadian, Italian, Japanese, and Russian. In addition, *Zeitschrift für Kristallographie*, *Gems & Gemology*, *Meteoritics & Planetary Sciences*, *The Mineralogical Record*, and *New Data on Minerals* have given permission. MSA reports that journal downloads increased by 500-600% after posting our scanned PDFs. Unfortunately, two major mineralogical journals, the *European Journal of Mineralogy* and *Neues Jahrbuch für Mineralogie* (*Monatshefte and Abhandlungen*), have declined to participate. The solution, for these three journals, at the moment, is to link only the PDFs of the free abstracts. In addition, it is a goal that each change to the database and each piece of data include a citation and its PDF when possible. All members of the committee contribute to this component of the mineral list. Ciriotti, with his own resourceful “system alert” methods found by experimentation over the course of many years, daily examines and controls a significant number of published papers that contain changes (mainly structural, crystal-chemical, IR and Raman studies) in mineral species, mineral groups, and nomenclature. Starting July 2008, he will immediately communicate all the news to RRUFF, in form of PDF or abstracts or, in a limited number of cases, just as references, highlighting the most important results.
 3. The ability to group minerals into various classification schemes is important. To this end the website has invoked the web-design concept of tags. For instance, a tag of “rock-forming minerals” has been created, and the minerals that are considered rock-forming (according to Deer, Howie and Zussman) are given that tag. It is relatively simple to identify minerals with the same tags, and minerals with various tags can be combined through logical operations. For example, rock-forming minerals that are amphiboles can be easily identified. The mineral groups of the 2008 edition of *Fleischer* have been entered into the database, and the *Strunz* tables are currently being added. In addition, Downs and Ciriotti are undertaking a grouping of isostructural minerals. A list of biominerals has been created. Most of this effort is currently being done by Mooney, Ciriotti and Downs.

Additional goals for the next year include:

- A. Get others involved! Now that the mineral names are correct and the contents of the list stabilized, it is now time to get others involved so that the database gets used by various groups. The IMA commissions could actively participate in this part of the project with their own data. For example, the Commission on

- Museums recently created a list of type localities for minerals that is posted in several large PDFs. This database could be associated with the mineral list, but still managed entirely by the Commission on Museums. Perhaps the meteorite group could produce and manage a list of minerals found in meteorites, and their important properties. Following recent discussions on the MSA list server, Downs is meeting with Dave Hirsch at the Goldschmidt meeting to determine if Hirsch can build a database of optical properties modeled after the contents of the Troeger Tables, with search/match capability through the IMA mineral list.
- B. Streamline the access to the database so that other websites and individuals can make optimal use of it. Right now there is a means to download data in an Excel file or as a Microsoft Word dictionary. There are links to the Handbook of Mineralogy, AMCSD, RRUFF, MINDAT and WEBMIN. A set of more primitive protocols should be constructed so that these other databases can interact with the IMA mineral list in a more seamless way.