
PETROLOGIC TERMINOLOGY

PETROGRAPHIC DESCRIPTIONS are essential parts of many geologic reports, but such descriptions are not easy reading, and they demand care to keep them as free as possible from abstruse phraseology. The geologist who includes petrographic descriptions in a geologic report should make them an essential part of the story. Unless a paper is aimed primarily at other petrologists, the author should avoid overly detailed petrographic descriptions. Instead, include only matter that bears directly on the overall purpose of the report. Thus, a report on a mining district is hardly the place to introduce a new rock name or to exhaustively describe all the rocks and thin sections that have been examined. On the other hand, even minute features of host rocks warrant full description if they bear on the origin of the ore deposits or on the search for more ore.

GENERAL PETROLOGIC TERMS

General definitions of standard petrologic terminology, including rock textures, fabrics, color, and state of aggregation, are given by Bates and Jackson (1987) and Tomkeieff (1983). Recent additional information on the appearance of certain textures and rock types in thin section may be found in MacKenzie and Guilford (1981), MacKenzie and others (1982), and Adams and others (1984).

IGNEOUS ROCK NAMES

The Subcommittee on the Systematics of Igneous Rocks of the International Union of Geological Sciences (IUGS) has proposed standards for the use of plutonic and volcanic rock names (Streckeisen, 1967, 1976, 1979). This system is now widely used internationally for the modal and normative classification of igneous rocks. Another useful classification is based solely on chemistry, without regard for modal expression or recalculated norms (De La Roche and others, 1980); authors working with intermediate to mafic igneous rocks or silica-deficient rocks may find this system of classification more useful than that of Streckeisen. STA recommends that authors use one or the other of these systems for naming igneous rocks. In any event, to avoid any misunderstanding, authors should clearly identify whatever system they have used.

SEDIMENTARY AND METAMORPHIC ROCK NAMES

Nomenclatures of sedimentary and metamorphic rocks have not been standardized. Authors should consult widely used texts in sedimentary and metamorphic petrology for naming these rocks. Also, many review volumes, symposia proceedings, and individual periodical issues devoted to individual rock types provide guidelines on their nomenclature.

NEW NAMES

Petrologists should be chary about proposing new rock names. Henry S. Washington, who himself proposed 31 rock names, spoke many years ago of the host of new names as "impossible to remember and not worth remembering." He once remarked also that he was spending his later years in sackcloth and ashes over his early rock-naming sins, and then related a story about himself. On receiving a paper from England that contained a rock name meaningless to him, he asked Norman L. Bowen if he knew what the Englishman was talking about, and Bowen replied, "You should know, you proposed that name yourself."

MODIFIERS

Applying modifiers, such as mineral prefixes, to existing rock names is generally more satisfactory than introducing new names into the literature. In using such modifiers, Survey petrologists should follow a uniform scheme for the use of hyphens, based on the principle that like names are connected by hyphens and unlike names are not. Modifiers used for such terms generally fall into four classes: (1) rock names, (2) mineral names, (3) textural terms, such as porphyritic, gneissic, or vitrophyric, and (4) names expressing kinds of clastic aggregation, such as agglomerate, breccia, or tuff. Names within any one class are hyphenated; others are not:

biotite-pyroxene andesite
albite-epidote-chlorite schist
porphyritic nepheline syenite
trachyte tuff

An unhyphenated compound term should remain unhyphenated when it becomes a unit modifier: “quartz monzonite dike,” for example. Expressions such as “granite-syenite contact” or “sandstone-siltstone transition” should be avoided; they seem to refer to single rocks. Instead, say “contact of the granite and the syenite” or “transition from sandstone to siltstone.”

Polysyllabic adjectives should be avoided in favor of shorter and simpler terms. Words such as “aphanitic,” “melanocratic,” and “arenaceous” are not as good as “fine-grained,” “dark-colored,” and “sandy.”

The terms “acid,” “basic,” and “alkaline” for describing rocks and minerals have been frowned upon since the time of F.W. Clarke. Rocks characterized by quartz are “silicic” rather than “acidic.” Rocks are “alkalic,” “calcic,” “sodic,” or “potassic” but not “alkaline.” Similarly, the terms “mafic” and “ferromagnesian” are preferred over “basic.”

PETROLOGIC ABBREVIATIONS

Authors are urged to follow the mineral symbology of Kretz (1983) when using mineral-phase abbreviations as symbols, subscripts, or superscripts in a manuscript. These symbols (table 3, p. 108) conform to the following guidelines:

1. The mineral symbol should consist of two or three letters, the first capitalized and the other(s) lowercase.
2. The first letter of the symbol should be the same as the first letter of the mineral name; the other letter(s) should be selected from the mineral name, preferably from the consonants.
3. The symbol should not be identical to any symbol of the elements in the periodic table.
4. The symbol should not spell out a common word of any language used in scientific writing.

These guidelines should be followed by authors who intend to compose new symbols for minerals not listed in table 3.

Mineral-phase symbols and mineral-component symbols must be clearly distinguished from one another (Kretz, 1983). Mineral-phase symbols should always begin with uppercase letters; mineral-component symbols should consist solely of lowercase letters; for example, Di = the mineral phase diopside, di = the diopside component in a pyroxene or a melt.

ROCK ANALYSES AND SAMPLE DESCRIPTIONS

A representative table showing one way to report rock analyses is given by table 10, page 220. To help the reader interpret the analyses, a description of the samples can be provided either by footnotes or by a separate table.