PHYSICAL CONSTANTS OF INORGANIC COMPOUNDS

The compounds in this table were selected on the basis of their laboratory and industrial importance, as well as their value in illustrating trends in the variation of physical properties with position in the periodic table. An effort has been made to include the most frequently encountered inorganic substances; organometallics are not covered, with the exception of metal salts of organic acids. Many, if not most, of the compounds that are solids at ambient temperature can exist in more than one crystalline modification. The information given here applies to the most stable or common crystalline form. In cases where two or more forms are of practical importance, separate entries will be found in the table.

In the default listing, the compounds are arranged primarily in alphabetical order by the most commonly used name. However, adjustments are made in many instances in order to bring closely related compounds together. For example, hydrides of elements such as boron, silicon, and germanium are grouped together immediately following the entry for the parent element, since they would otherwise be scattered throughout the table. Likewise, the oxoacids of an element are given in one group when a strict alphabetical order would separate them (e.g., sulfuric acid and fluorosulfuric acid). The data fields in the table are described below.

- **substance name**: Systematic name for the substance. The valence state of a metallic element is indicated by a Roman numeral, e.g., copper in the +2 state is written as copper(II) rather than cupric.
- **synonym**: Another name in common use.
- **mol. formula**: The simplest descriptive Hill formula is given, but this does not necessarily specify the actual structure of the compound. For example, aluminum chloride is designated as $AlCl_3$, even though a more accurate representation of the structure in the solid phase (and, under some conditions, in the gas phase) is Al_2Cl_6. A few exceptions are made, such as the use of Hg_2^{+2} for the mercury(I) ion.
- **common formula**: The formula as most commonly written.
- **CAS Registry No.**: Chemical Abstracts Service Registry Number. An asterisk* following the CAS RN for a hydrate indicates that the number refers to the anhydrous compound. In most cases the generic CAS RN for the compound is given rather than the number for a specific crystalline form or mineral.
- **physical form**: The crystal system is given, when available, for compounds that are solid at room temperature, together with color and other descriptive features.
- **mol. weight**: Molecular weight (relative molar mass) as calculated with the 1993 IUPAC Recommended Atomic Weights. The number of decimal places corresponds to the number of places in the atomic weight of the least accurately known element (e.g., one place for lead compounds, two places for compounds of selenium, germanium, etc.); a maximum of three places is given. For compounds of radioactive elements for which IUPAC makes no recommendation, the mass number of the isotope with longest half-life is used, and the result is rounded to the nearest integer.
- **melting point**: Normal melting point in °C. The notation [triple point] indicates the temperature where solid, liquid, and gas are in equilibrium at a pressure greater than one atmosphere (i.e., the normal melting point does not exist). When available, the triple point pressure is listed.
- **b.p.**: Normal boiling point in °C (referred to 101.325 kPa or 760 mmHg pressure). The notation [sublimation point] following the number indicates the temperature where the pressure of the vapor in equilibrium with the solid reaches 101.325 kPa. See Reference 8, p. 23, for further discussion of sublimation points and triple points. A notation [sublimes] without a temperature being given indicates that there is a perceptible sublimation pressure above the solid.
- **density**: All values are given in units of grams per cubic centimeter. Values for solids and liquids can be assumed to refer to temperatures near room temperature unless otherwise stated. Values for gases are the calculated ideal gas densities 25°C and 101.325 kPa.
- **solubility**: Qualitative information on the solubility in various solvents is given. The abbreviations are:
  - i insoluble
  - sl slightly soluble
  - s soluble
  - vs very soluble

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