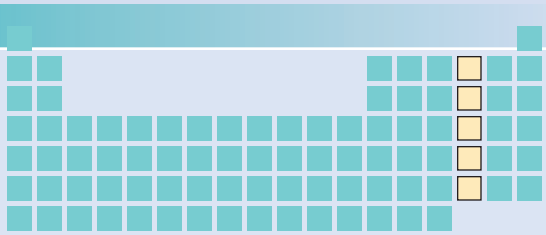
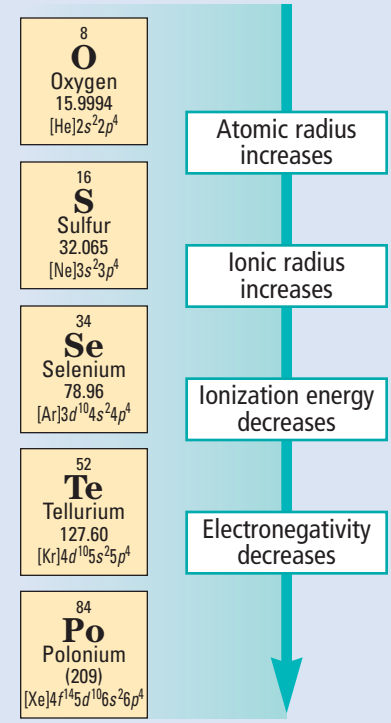
GROUP 16
OXYGEN FAMILY

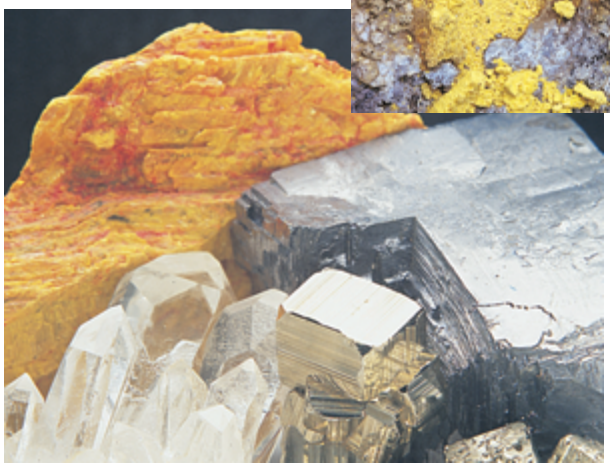


CHARACTERISTICS

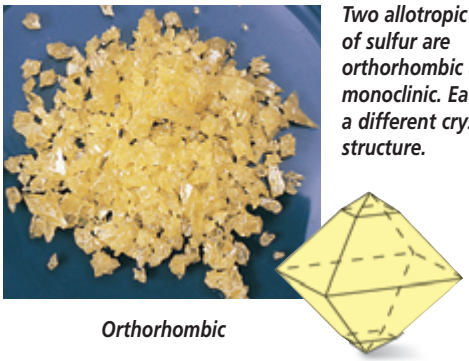
- occur naturally as free elements and in combined states
- consist of three nonmetals (oxygen, sulfur, and selenium), one metalloid (tellurium), and one metal (polonium)
- consist of atoms that have six electrons in their outermost energy level
- tend to form covalent compounds with other elements
- exist in several allotropic forms
- tend to exist as diatomic and polyatomic molecules, such as O_2, O_3, S_6, S_8, and Se_8
- commonly exist in compounds with the –2 oxidation state but often exhibit other oxidation states



Sulfur is found naturally in underground deposits and in the steam vents near volcanoes.

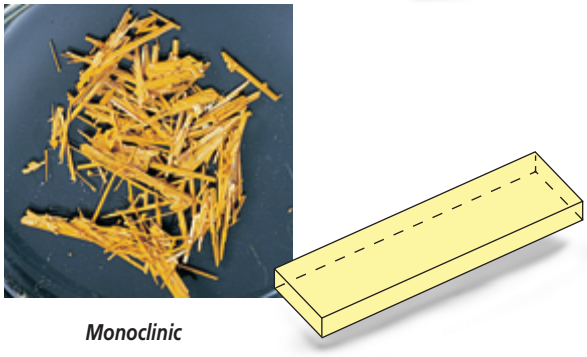


Sulfur exists in combined forms in many minerals. Iron pyrite, FeS_2, black galena, PbS, and yellow orpiment, As_2S_3, are shown.



Two allotropic forms of sulfur are orthorhombic and monoclinic. Each has a different crystal structure.

Orthorhombic



Monoclinic