Thiol Functional Group Encyclopedia Article

Thiol Functional Group

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Thiol Functional Group

Thiols are molecules which contain an SH group. They are structurally similar to alcohols which contain an OH group. Chemically, thiols and alchohols react similarly.**Oxygen** and **sulfur** both appear on the same column of the **periodic table** with oxygen in the second row and sulfur in the third. In 1834, W. C. Zeise discovered thiols. Zeise named thiols as mercaptans because they readily react with **mercury** to form an insoluble **salt**. Thiols tend to be a clear liquid or white crystalline form. Characteristic of other sulfur-containing compounds, thiols have a stench that smells similar to rotten eggs.

Chemically, thiols occur readily in petroleum processes such as **distillation**. Biologically, thiols are found in the human body in protein linkages. The amino acid cysteine contains a thiol group, which bands with another cysteine to form disulfide bridges. Thiols are also found naturally in garlic, onions, coffee, and skunk secretions. Because of thiol's distinct odor, it is often added to odorless **gases** such as **methane** in order to detect leaks. It can also be used for **corrosion** protection of antifreeze, regulation of polymerization, and manufacture of insecticide and pharmaceuticals. In recent technology, thiols are used to create self-assembled monolayers (SAMs) on **gold** and other noble **metals**, which are protected from **oxidation** and other chemical effects.