Thiol

General formula for a thiol

A **thiol** is a molecule that has a R–SH group. Thiols are like alcohols with an oxygen atom changed with a sulfur one. They have often a very strong and bad smell. Thiols are added to natural gas so that people can smell it. This is because methane does not have a smell but can explode very easily.

Thiols are very easy to oxidize. They are also quite acidic, more than alcohols. When the proton is taken away by a base, the thiol can become a nucleophile. It can do reactions like nucleophilic substitution.

One of the natural amino acids, cysteine, has a thiol in its structure.

• v • t • e	**Functional groups**	
Hydrocarbons (only C and H)	• Alkene ◦ Vinyl ◦ Allyl ◦ 1-Propenyl ◦ Crotyl • Alkyl ◦ Methyl ◦ Ethyl ◦ Propyl ◦ Butyl ◦ Pentyl • Alkyne • Carbene • Methine • Allene • Benzyl • Cumulene • Methylene bridge • Methylene group • Phenyl	
Only carbon, hydrogen, and oxygen (only C, H and O)	**R-O-R**	• Epoxide • Ether

		• Peroxy ◦ Organic • Acetal • Alkoxy ◦ Methoxy • Dioxirane • Ethylenedioxy • Hydroxy • Methylenedioxy
	carbonyl	• Aldehyde • Ketone • Acyl ◦ Acetyl ◦ Acryloyl ◦ Benzoyl • Ynone
	carboxy	• Carboxyl ◦ Acetoxy ◦ Carboxylic anhydride • Ester ◦ Orthoester
Only one element, not being carbon, hydrogen, or oxygen (one element, not C, H or O)	**Nitrogen**	• Amine • Hydrazone • Nitrate • Nitrile • Nitro • Azo • Carbamate • Cyanate • Imide • Imine • Isocyanate • Isonitrile • Nitrene • Nitroso • Nitrosooxy • Amide • Oxime
	Phosphorus	

		• Phosphonate • Phosphonous
	Sulfur	• Sulfone • Sulfoxide • Thial • Thioester • Thioketone • Thiol • Disulfide • Persulfide • Sulfo • Sulfonic acid • Thionoester • Sulfide • Sulfino • Sulfinyl • Sulfonyl • Thionyl • Thiosulfinate • Thiosulfonate • Thioxanthate • Xanthate
	Selenium	• Selenol • Selenonic acid • Seleninic acid • Selenenic acid • Selone
	Tellurium	• Tellurol • Telluroketone
	halo	• Fluoroethyl
Other	• Sulfonamide • Isothiocyanate • Phosphoramides • Sulfenyl chloride • Thiocyanate	