



Enology News & Notes, Volume 1 #4—December 2011

Mercaptans and other volatile sulfur compounds in wine

Summarized from website, www.wineanorak.com

© Jamie Goode 2006

| Chemical Compound | Sensory impact | Notes |
|--|---|--|
| Hydrogen sulfide | Rotten eggs, sewage | This is generated by yeasts when they use one of the sulfur-containing amino acids as a nitrogen source. Stress also encourages its formation. |
| Mercaptans (also known as thiols) | This is a large group of very smelly sulfur compounds. Terms such as cabbagey, rubbery, struck flint or burnt rubber are used as descriptors. | If hydrogen sulfide isn't removed quickly, it can result in mercaptan production: a major issue for winemakers. |
| Ethyl mercaptan | Burnt match, sulfidy, earthy | Often negative, but can be positive in the right wine environment at certain levels. |
| Methyl mercaptan (methanethiol) | Rotten cabbage, cooked cabbage, burnt rubber, stagnant water | One of the compounds implicated in screwcap reduction. (Reduction occurs when absolutely no oxygen is present.) |
| Dimethyl sulfide | Cooked vegetables, cooked corn, canned tomato at high levels; blackcurrant drink concentrate at lower levels; also, quince, truffle. | |
| Diethyl sulfide | Rubbery | |
| Carbon disulfide | Sweet, ethereal, slightly green, sulfidy | |
| Dimethyl disulfide | Vegetal, cabbage, onion-like at high levels | |
| Diethyl disulfide | Garlic, burnt rubber | |
| 4-mercapto-4-methylpentan-2-one (4MMP), 3-mercaptohexan-1-ol (3MH), 3-mercaptohexyl acetate (3MHA) | Tropical fruit/passion fruit at lower levels; cat's urine at higher levels. | Common in Sauvignon Blanc but also found in red wines where they may contribute to the blackcurrant fruit aroma; an example of sulfur flavors that can be positive in the right environment. |
| Benzenemethanethiol | Smoky/gunflint aromas | Can be positive in the right context and at the right levels. |

Institute for Continental Climate Viticulture and Enology

College of Agriculture, Food & Natural Resources

Michael J. Leonardelli, MS, MBA

ICCVE Enology Extension Associate

124 Eckles Hall, Columbia MO 65211-5140

Website: <http://iccve.missouri.edu>

Office: 573-884-2950

Cell: 573-239-6121