

***Olfaction [Part III: Odor and Functionality]***

Since compounds with the same molecular formula can smell very differently, there needs to be further refinement of our view of organic compounds in order to explain their olfactory differences. Next we will consider the odorant molecule's functionality. The theory of smell that you provided in **Part II** should be consistent with these features. In **Part IV**, a compound's formula, structure and function will be related to *chemical communication* in plant's, animals, and humans.

Complete the back of this page. Provide names or structural formulas for the molecules of the smell unknown samples from their names or the structures provided. This will require you to use one or more chemical references: a very useful, hard copy reference for organic molecules is *The Merck Index*, which is available from the stockroom; there are many others including on-line tools. *Wikipedia.org* is a very useful and generally reliable resource for chemical information (*not necessarily true for information on all of its subjects*). Links to many other on-line information resources can be found on the Chem 226 Web Resources page. You may need to consult more than one resource to find what you are searching for.

***Suggestions:***

Begin with the named compounds in the table and find a correct structure for each using a name index/search for your query. (*Google does work. But beware, organic molecules can have several different names, and there is a lot of information on the Web that is not accurate or reliable.*) Then, from the structure identify the functionality or functionalities present in each compound.

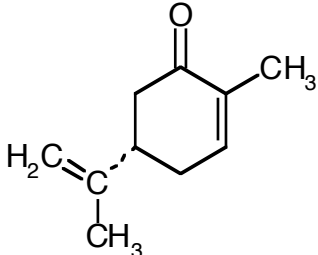
For compounds with structures already given, identify the function(s) in the structure then determine the molecular formula for each. Use the molecular formula to search for a name. In order to find a correct name, you will first have to relate the functionality directly to the name from a list of possibilities with the same molecular formula to narrow the possibilities. (*NOTE: The generic name of the function relates directly to the name of the compound. Eg. ketones have a suffix of -one in their names. Alcohols, -ol, etc.*) Then compare those structures to those given in the table in order to determine the correct structure.

After completing the table, as a group discuss and refine your theory of smell and answer the accompanying questions.

Names: \_\_\_\_\_

Sec. \_\_\_\_\_

**Olfaction: Odor & Functionality****Part III***(Complete the form & turn in one form per group, everyone's name included.)*

	<i>Chemical Name</i>	<i>Structure</i>	<i>Chemical Function(s)</i>	<i>Smell</i>
<b>O-1</b>	oil of wintergreen			Minty
<b>O-2</b>	triethyl amine			Putrid/ Animal
<b>O-3</b>	isoamyl acetate			Fruity
<b>O-4</b>		$(\text{CH}_3)_3\text{COH}$	3° alcohol	Camphor
<b>O-5</b>	butanoic acid ethyl ester			Fruity
<b>O-6</b>	<i>l</i> -carvone			Minty
<b>O-7</b>		$(\text{CH}_3)_3\text{COCH}_3$		Camphor
<b>O-8</b>		$\text{H}_2\text{NCH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$		Putrid/ Animal
<b>O-9</b>		$\text{CH}_3\text{CH}_2\text{CH}_2\text{CO}_2\text{H}$		Rancid/ Fatty
<b>O-10</b>	diallyl disulfide	$\text{CH}_2=\text{CH}_2\text{CHSSCHCH}_2=\text{CH}_2$	di-thioether	Garlic/ Alliaceous
<b>O-11</b>		See structure below 		Caraway/ Herbaceous