

Environmental health and safety interaction of hazardous materials

[Science](#), [Chemistry](#)



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In organic chemistry, a functional group is an atom or group of atoms that determines the compound's characteristics. For each of the following compounds: 1) give an acceptable name; 2) identify the functional group; and 3) discuss general key chemical properties of the chemical that a fire, environmental, health or safety personnel should know.

(a) Acceptable Name: butyl ethyl ether or 1 - ethoxy butane

Functional Group: Ether

(b) Acceptable Name: 3 - methyl - 1 - pentanol

Functional Group: Alcohol

(c) Acceptable Name: 2 - hexanone

Functional Group: Ketone

Chemical Properties

(a) butyl ethyl ether or 1 - ethoxy butane

Butyl ethyl ether, with melting point of -124°C and boiling point of 92.2°C at 1 atm, is known to be a moderately toxic substance upon ingestion and an irritant to skin and eyes upon contact or inhalation. Due to flammability, severe caution must be taken to avoid exposure of the substance to heat or flame. In case of fire generated through butyl ethyl ether, one may combat fire by using carbon dioxide, dry chemicals, or alcohol foam. Once it decomposes, irritating fumes and acrid smoke are emitted by butyl ethyl ether which is also capable of reacting with oxidizing agents and forming explosive peroxides. Vapors of the substance may bring about suffocation or dizziness so it must be stored in a tightly closed container in a dry well-

ventilated place and must be handled as well with spark-proof or explosion-proof device for safety.

(b) 3 - methyl - 1 - pentanol

The 3 - methyl - 1 - pentanol is basically a clear colorless liquid with a boiling point of 151 - 152°C and a flash point of 138°F. Such organic compound must be kept from sources of ignition for being flammable. While no further hazards are associated with handling of 3 - methyl - 1 - pentanol, it may be corrosive when reacted with alkali metals.

(c) 2 - hexanone

The 2 - hexanone is found to be a clear colorless flammable liquid that boils at 127°C and melts at -57°C. Vapors of 2 - hexanone are heavier than air but water is denser than the liquid form of the substance. Additional caution should be taken on handling the substance so as to avoid instances of fire hazards and unfavorable consequences upon reaction with reducing agents and strong bases. Systemic injury and peripheral neuropathy may result upon ingestion of 2 - hexanone in huge quantities. Other serious health effects include eye and skin irritation due to repeated or prolonged contact with the chemical whereas narcosis is caused by inhalation of its high vapor concentrations.

References

" Butyl Ethyl Ether." LookChem. Retrieved from <http://www.lookchem.com/Ethyl-butyl-ether/> on Nov 18, 2012.

" 2 - Hexanone." Chemical Book. Retrieved from http://www.chemicalbook.com/ChemicalProductProperty_EN_CB1682968.htm on Nov 18, 2012.

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