

Pentane and Isopentane in Indoor Air

Pentane (CAS 109-66-0) and isopentane (CAS 78-78-4, also known as 2-methylbutane) are C5-hydrocarbons that often appear as VOCs in indoor air quality reports. Both VOCs are a liquid at room temperature, but have boiling points slightly above room temperature. A low boiling point means that these compounds are highly volatile at room temperature, which leads to these compounds having useful applications as blowing agents, expanding agents, and propellants in consumer products.

Pentane is the primary blowing agent used in the production of polystyrene foam products and is typically detected in elevated amounts immediately after foam installation. Perusal of the National Institute of Health (NIH) Household Product Database (<http://householdproducts.nlm.nih.gov/>) indicates that pentane is the propellant of choice for most varieties of spray adhesives and some spray lubricants. Rapid evaporation of pentane yields timely adhesive and lubricant action. For personal care products, pentane is present at 1-10% in men's and women's shaving gels and provides the expansion action of the gel when the gel is dispensed on the skin.

Isopentane is the primary blowing agent used in polyisocyanate foam production and is also used as an expansion agent in shaving gels. In addition, isopentane is used as a propellant for aerosol deodorants. Frequently, a pentane/isopentane mixture is used in many of the aforementioned products. Additional minor amounts of pentane and isopentane can be found in gasoline and other fuels and light hydrocarbon solvents.

About Prism Analytical Technologies, Inc.

Prism Analytical Technologies, Inc. is a leading consultative air testing laboratory in the United States that is devoted to the chemical identification and analysis of contaminants in the air. We are a recognized leader in the development and deployment of ambient air testing methodologies for Fortune 100 and 500 companies, industrial hygienists, and environmental consultants. Prism's science-based technologies and wide range of air testing support help clients solve indoor air quality, process control, industrial, and environmental challenges.