

Flammability Testing Of Valuable Fragrances And Flavorings

Grabner MiniFlash Reduces The Costs Of Complying With Transportation Regulations

Valuable fragrance and flavoring chemicals are often a flammable liquid because they are based upon, or diluted in, alcohol or another flammable organic solvent. Due to their flammability, the transportation of these chemicals is commonly regulated under government rules for the transportation of hazardous materials such as the United States Department of Transportation and its Code of Federal Regulations.

Transportation of these products requires their manufacturer to classify their flammability based upon their flashpoint. While common flashpoint methods such as Pensky-Martens are typically cited by these regulations, the large sample volumes required by these methods are both costly and undesirable for fragrance and flavor manufacturers to follow.

Problem

Specialty flavor and fragrance chemicals are typically produced in very small batch quantities using very expensive processes and materials. For these batches, a 75 ml / 2.54 fl.oz. sample, required by the Pensky-Martens method may represent a significant portion of the total production volume. Additionally, for these highly valuable products, the commercial value of the sample required for a Pensky-Martens test may range from hundreds to thousands of dollars per test.

In addition, the heating and flashing of these chemicals releases powerful, and often objectionable, odors throughout a laboratory. Clearly, manufacturers of flavors and fragrances need a better method of flash point testing.

Solution

The MiniFlash by Grabner Instruments was specifically created to be a safer and easier-to-use alternative to traditional flash point test methods such as Pensky-Martens. This fully automatic flash point tester achieves its high level of safety by requiring a very small 1 ml sample size and by completely isolating the sample throughout its test inside a continuously closed cup.

The small sample size and continuously closed cup minimizes both the potential for a fire and the cost of testing. The MINIFLASH offers another noticeable benefit for laboratory personnel who test flavor and fragrance chemicals. The odors related to testing these chemicals are drastically reduced by the combination of the small sample size and the continuously closed cup testing method.

In independent round robin testing, the MiniFlash was proven to be statistically equivalent to the Pensky-Martens flash point method. As a direct consequence of this statistical equivalence, the U.S. Department of Transportation has granted special permits allowing "...the flash points of volatile organic liquids may as an alternative be determined by means of a Grabner MiniFlash Flashpoint Analyzer."

In summary, the MiniFlash reduces the expense related to flash point testing while making the laboratory a safer and more enjoyable place to work.

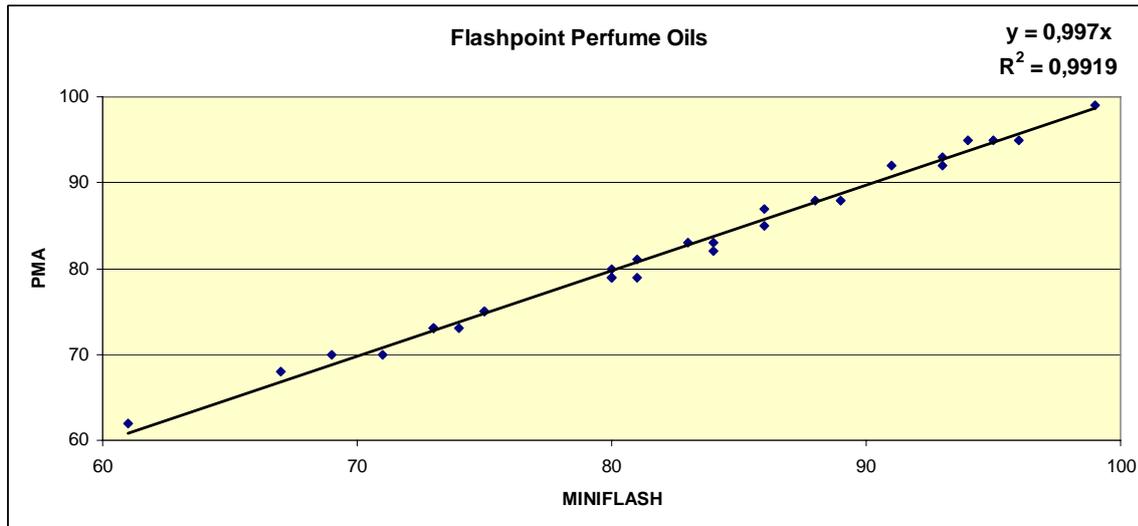


Fig. 1: MINIFLASH vs. automated Pensky Martens, performed by Henkel Germany.
PMA methods: ISO 2719, EN 22719, ASTM D93.