MELTING POINT

TEST SUBSTANCE

Identity: N-ethylperfluorooctane sulfonamidoethanol; may also be referred to as N-EtFOSE Alcohol or FM-3422. (1-Octanesulfonamide, N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-(2-hydroxyethyl)-, CAS # 1691-99-2)

Remarks: Material is an off-white, waxy solid of uncharacterized purity. It was characterized as being stable at room temperature.

METHOD:

Method followed: OECD Guideline No. 102 (capillary/metal block) using a Büchi B-545 Melting Point Apparatus.

GLP: No

Year study was performed: November 19, 1999

Remarks:

A glass melting point capillary was filled to a height of about 1.5 cm with the test substance, packing it down with a stainless steel rod.

The instrument was set for 20°C/min heating rate in order to determine the approximate melting point (56°C), as determined by the instrument's automatic melting point detection (based on optical transmission).

Next the instrument was set for 0.1°C/min heat rate, starting at 54°C.

There was no sign of decomposition or sublimation of the sample.

The Büchi instrument was last calibrated on November 2, 1999, using Vanillin (mp 81.5°C), Phenacetin (mp 134.6°C), and Caffeine (mp 235.9°C) melting point standards. The measured melting points for Vanillin and Phenacetin were within the ±0.2°C accuracy specification of the standard samples. The Caffeine melting point was measured at 235.4°C, so the instrument's high-temperature calibration point was adjusted at that time to agree with the 235.9°C standard value. The recommended calibration interval is 1 year.

RESULTS

The automatic melting point detection at 0.1°C/min showed a melting point of 59.6°C. However, the sample was visually observed to have a melting point range, starting at 55°C and finishing at 60°C, with most of the melting occurring at 59.6°C.

CONCLUSIONS

The fact that melting occurred over a range indicates the likely presence of impurities.

DATA QUALITY

Reliability: Klimisch ranking = 2. Sample purity was not sufficiently characterized.

No information on the production lot number of the sample was provided, nor was any information on the purity of the substance indicated.

Testing will be redone using a purified sample if purification can be properly done. Experience has concluded that purification generally leads to a reduction in the concentration of higher and lower molecular weight homologues, as well as, potentially, a change in the relative composition of the isomers.

REFERENCES

3M Internal Correspondence from Steven P. Brinduse, SMMD Analytical Laboratory, Subject: Melting Point of N-Ethyl FOSE Alcohol, November 22, 1999

OTHER

Submitter: 3M Company, Environmental Laboratory, P.O. Box 33331, St. Paul, Minnesota, 55133

Last changed: 5/18/00

3M Internal Correspondence

To: Scott B. Strand, 3M Environmental Technology & Safety Services
778-7644, Building 02-3E-09

From: Steven P. Brinduse *236-2B-11* 736-1007 736-6377(fax)
SMMD Analytical Laboratory

Date: November 22, 1999

Subject: Melting Point of FM-3923 N-Ethyl FOSE Alcohol

A sample of FM-3923 was submitted for measurement of melting point.

Melting Point was determined using a Büchi B-545 Melting Point Apparatus. A glass melting point capillary was filled to a height of about 1.5 cm with the test substance, packing it down with a stainless steel rod.

The instrument was set for 20°C/min heating rate in order to determine the approximate melting point (56°C), as determined by the instrument's automatic melting point detection (based on optical transmission).

Next the instrument was set for 0.1°C/min heat rate, starting at 54°C. The automatic melting point detection showed **a melting point of 59.6°C**. However, the sample was visually observed to have a melting point range, starting at 55°C and finishing at 60°C, with most of the melting occurring at 59.6°C.

There was no sign of decomposition or sublimation of the sample.

The Büchi instrument was last calibrated on November 2, 1999, using Vanillin (mp 81.5°C), Phenacetin (mp 134.6°C), and Caffeine (mp 235.9°C) melting point standards. The measured melting points for Vanillin and Phenacetin were within the ±0.2°C accuracy specification of the standard samples. The Caffeine melting point was measured at 235.4°C, so the instrument's high-temperature calibration point was adjusted at that time to agree with the 235.9°C standard value.