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GB/T 5208-2008 / ISO 3679:2004

Replacing GB/T 5208-1985, GB/T 7634-1987

Determination of Flash Point – Rapid Equilibrium Closed Cup Method

(ISO 3679:2004, IDT)

闪点的测定 快速平衡闭杯法

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Standardization Administration of the People's Republic of China.

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Foreword

This Standard equivalently adopts ISO 3679:2004 *Determination of Flash Point – Rapid Equilibrium Closed Cup Method* (English Version).

This Standard replaced GB/T 5208-1985 *Coatings - Flash Point Test - Rapid Equilibrium Method*, and GB/T 7634-1987 *Petroleum and Related Products - Determination of Lower Flashpoint - Rapid Equilibrium Method*.

The major technical differences between this Standard and GB/T 5208-1985 & GB/T 7634-1987 are as follows:

---This standard combines the contents of the two standards; and its applicable products and test flash point range are wider than the original standard;

--- The original two standards refer to ISO 1523:1983 and ISO 3679:1983;

--- Add calibration method of the instrument;

--- Add the technical requirements for the thermometer used for testing;

--- Add the method of using the embedded cup;

--- Add the relevant content of testing samples with a flash point greater than 100 °C;

--- The expression of precision is different;

--- Describe the operating procedures respectively according to the flash point no greater than 100°C and greater than 100°C;

--- Give the requirements for flash point testing equipment in Annex A.

This Standard's Annexes A and B are normative, while Annexes C and D are informative.

This Standard was proposed by China Petroleum and Chemical Industry Association.

This Standard shall be under the jurisdiction of National Technical Committee on Paints & Pigments of Standardization Administration of China (SAC/TC 5).

Drafting organization of this Standard: CNOOC Changzhou Paint & Coating industry Research Institute.

Chief drafting staff of this Standard: Feng Shifang.

GB/T 5208 was first-time published in 1985; GB/T 7634 was first-time published in 1987; it is thee first-time combined and revised hereby.

Determination of Flash Point – Rapid Equilibrium Closed Cup Method

1 Scope

This Standard specifies a method for the determination of the closed cup flash point of paints (including water-borne paints), varnishes, paint binders, adhesives, solvents, petroleum, and related products having closed cup flash points within the range of -30°C ~ 300°C. When used in conjunction with the flash detector (A.1.6), this Standard is also suitable for the determination of the flash point of fatty acid methyl esters (FAME).

2 Normative References

The provisions in following documents become the provisions of this Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrigendum) or revisions do not apply to this Standard, however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB/T 3186 Paints Varnishes and Raw Materials for Paints and Varnishes - Sampling (GB/T 3186-2006, ISO 15528:2000, IDT)

GB/T 20777 Paints and Varnishes - Examination and Preparation of Samples for Testing (GB/T 20777-2006, ISO 1513:1992, IDT)

SY/T 5317 Petroleum Liquid - Automatic Pipeline Sampling (SY/T 5317-2006, ISO 3171:1988, IDT)

ISO 3170 Petroleum Liquids – Manual Sampling

3 Terms and Definitions

For the purposes of this Document, the following terms and definitions apply.

3.1 Flash point

Lowest temperature of the test portion (as measured in the prescribed manner). corrected to a

the instrument.

10.1.4 Do not confuse the true flash point with the bluish halo that sometimes surrounds the test flame at applications preceding that which causes the actual flash.

NOTE: The optional flash detector (A.1.6) 1s not affected by the halo, and does not require the operator to closely observe the flash point test.

10.1.5 Record the ambient barometric pressure using a barometer (6.3) in the vicinity of the apparatus at the time of the test.

NOTE: It is not cons1dered necessary to correct the barometric pressure reading to 0°C, although some barometers are designed to make this correct1on automatically.

10.2 Procedure for flash points up to and Including 100°C and for FAME at all temperatures

10.2.1 Charge a clean and dry syringe, adjusted to a temperature at least 10°C below the expected flash point, with a 2 ml test portion. Close the sample container immediately after withdrawal to minimize the loss of volatile components.

10.2.2 Carefully transfer the syringe to the filler orifice and discharge the test portion into the test cup by fully depressing the syringe plunger. Remove the syringe.

10.2.3 For solid or semi-solid samples, transfer a mass equivalent to approximately 2 ml directly into the test cup and spread it over the bottom of the cup as evenly as possible.

10.2.4 Start the 1 min timing device (A.1.3). Open the gas control valve and ignite the pilot and test flames. Adjust the test flame to conform to the size of the 4 mm gauge ring. Reset the flash detector (A.1.6) if fitted.

10.2.5 When the audible time signal sounds, apply the test flame by slowly and uniformly opening and then closing the shutter over a period of 2 s to 3 s. Check for a flash (see 10.1.4).

If a continuous luminous flame burns in the orifice when the slide is opened and the test flame is introduced, then the flash point lies considerably below the test temperature. In such cases, a reduction of the test temperature by 10°C is recommended.

10.2.6 If a flash is observed, repeat the procedure given in 10.2.1 to 10.2.5 with a fresh test portion, starting at a temperature 5°C lower than that at which the flash was observed. If a flash is still observed at this lower temperature, lower the temperature a further 5°C and repeat again. Repeat until no flash is observed.

10.2.7 If no flash is observed, repeat the procedure given in 10.2.1 to 10.2.5 with a fresh test portion, starting at a temperature 5°C higher than that at which the last test portion was tested. Repeat tests at 5°C higher intervals until a flash is observed.

10.2.8 Repeat the procedure given in 10.2.1 to 10.2.5, using a fresh test portion for each test, at

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