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CHEMICAL INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

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HG/T 2334-2007

Replacing HG/T 2334-1992

Vulcanizing Accelerator TMTD

硫化促进剂 TMTD

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Foreword

This Standard replaces HG/T 2334-1992 *Vulcanizing Accelerator TMTD*.

The major differences between this Standard and HG/T 2334-1992 are as follows:

- Heating loss test conditions are changed into $(80\pm 2)^{\circ}\text{C}$; the index values are 0.30% (Clause 4.2 of Version 1992, Clause 4.3 of this version);
- Ash test condition are changed into $(750\pm 25)^{\circ}\text{C}$, the index values are 0.30% (Clause 4.3 of Version 1992, and Clause 4.4 of this version);
- Technical indicator to increase purity is regarded as the test items required by the user. Adopt high performance liquid chromatography (Clause 4.6 of this version).

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

This Standard shall be under the jurisdiction of National Technical Committee for Standardization of Rubber and Rubber Products, Chemical Additive Technical Subcommittee..

Drafting organizations of this Standard: (Hebei) Shenyang Northeast Auxiliary Chemical Industry Co., Ltd., Shandong Shanxian Chemical Co., Ltd., Hifull Chemical Industry Co., Ltd., Zhejiang Huangyan Zhedong Rubber Chemical Co., Ltd., and Zhenjiang ZhenBang Chemical Industry Co., Ltd..

Participating drafting organization of this Standard: Shanxi Learning-Production-Research Chemical Industry Center.

Chief drafting staffs of this Standard: An Fang, and Song Kuijing.

This Standard was first-time released in 1992, and this revision is the first revision.

[Translator: The historical edition replaced by this Standard is as follows:]

- HG/T 2334-1992.

Vulcanizing Accelerator TMTD

1 Scope

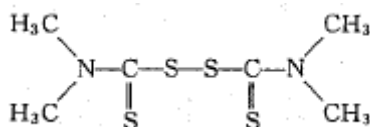
This Standard specifies the requirements, test methods, inspection rules, label, package, transportation and storage of vulcanizing accelerator TMTD (Tetramethyl thiuram disulfide).

This Standard is applicable to the vulcanizing accelerator TMTD that is prepared through the oxidation or electrolysis of dimethylamine, carbon disulfide, sodium hydroxide or ammonia.

Chemical name: TMTD (Tetramethyl thiuram disulfide)

Molecular formula: $C_6H_{12}N_2S_4$

Structural formula:



Relative molecular mass: 240.43 (as per 2005 international relative molecular mass)

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 191 Packaging - Pictorial Marking for Handling of Goods (GB/T 191-2000, eqv ISO 780:1997)

GB/T 1250 Rules for Expression and Judgment of Limiting Values

GB/T 6003.1 Test Sieves of Metal Wire Cloth

specimen is 1.2mm~1.4mm, glass thickness is 0.2mm~0.3mm, filling specimen 3mm~6mm. If heat-transfer-liquid temperature is about 25°C lower than the forecast melting point, then rise temperature as per 3°C/min; when it rises to 10°C less than the forecast melting point, attach the capillary that is loaded with specimen onto the thermometer, so that the specimen center is at the same height as the thermometer mercury ball center; insert the heat-transfer-liquid; rise the temperature as per $(1\pm0.2)^{\circ}\text{C}/\text{min}$.

4.2.1 Determination of initial melting point

This Standard specifies that the temperature, when the transparent droplets appear on contact position between the inner wall of capillary and the specimen, is the initial melting point.

4.2.2 Allowable difference

The difference between two parallel measurement results shall be no more than 0.5°C; take its arithmetic mean as the measurement result.

4.3 Determination of heating loss

Test as per the provisions of GB/T 11409.4; weigh approximately 3g (accurate to 0.1mg) of specimen; the temperature of electric thermostatic drier shall be controlled at $(80\pm2)^{\circ}\text{C}$; heating time is 2h.

4.4 Determination of ash

Test as per the provisions of GB/T 11409.7; weigh approximately 3g (accurate to 0.1mg) of specimen; the temperature of high-temperature furnace shall be controlled at $(750\pm25)^{\circ}\text{C}$. Burning time is 2h.

4.5 Determination of sieve residue

Test as per the provisions of GB/T 11409.5; test sieve (GB/T 6003): $\Phi 200\text{mm}\times 50\text{mm}/150\mu\text{m}$.

4.6 Determination of purity

High performance liquid chromatography test – identification test and TMTD content measurement shall be carried out simultaneously. Under the same chromatographic operating conditions, the relative difference between specimen solution chromatogram peak retention time and the TMTD chromatogram peak retention time in the standard sample solution shall be within 1.5%.

4.6.1 Method summary

Specimen shall be dissolved by methanol; take methanol + water as the mobile phase; use the stainless steel column and UV detector (254nm) with Nova-Pak C₁₈ as the

Carry out sampling as per GB/T 6679. During the sampling period, use stainless steel sampler to take upper, middle, and lower samples from the package; mix evenly the selected specimens; use quartation to take less than 600g of sample; and separately inject them into two clean and dry grinding mouth bottle (plastic bag); seal and label; indicate the manufacturer name, product name, batch number, sampling date, and sample collector name; one bottle (bag) shall be inspected by the inspection department, another bottle (bag) shall be sealed for three months for future review.

5.5 Re-inspection

If there is one index in the inspection result that doesn't conform to the requirements of this Standard, then sampling twice amount of product from the package; and carry out re-inspection. If there is still one index that doesn't conform to the requirements of this Standard, then such batch products shall be judged disqualified.

6 Mark, Package, Transportation and Storage

6.1 Mark

6.1.1 Each exterior package shall be equipped with clear and firm mark; its contents include product name, standard number, manufacturer name, address, contact phone, registration trademark, net weight, production date, batch number etc. According to the provisions of GB/T 191, the exterior package shall be marked with the sign of "Hand-hook is prohibited" and "afraid of rain".

6.1.2 Each packaged product shall be accompanied by a exit-factory certificate; its contents include product name, standard number, batch number, net weight etc.

6.2 Package

6.2.1 Product used woven bag is lined with plastic bag or fiber drums; the wooden barrel is lined with plastic bag; the net weight of each package product is about 20kg or 25kg.

6.2.2 If other package mode is required, then implement as per the contract.

6.3 Transportation

When moving, loading and unloading the product, handle with care; no throwing arbitrarily, so as to prevent damage the package, and avoid sun and rain.

6.4 Storage

6.4.1 The product shall be stored in the dry warehouse; and keep away from the wall about 0.5m. It shall not place in the vicinity of the upper and lower water or heating equipment, so as to prevent moisture or deterioration; the storage temperature shall

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