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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 13255.5-2009

Replacing GB/T 13255.5-1991

**Test methods of caprolactam for industrial use -- Part 5:
Determination of absorbance at a wavelength of 290nm**

工业用己内酰胺试验方法 第5部分：290nm波长处吸光度的测定

(English Translation)

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Foreword

GB/T 13255 "Industrial caprolactam test method" is divided into eight sections.

- Part 1. Determination of a 50% aqueous solution of chromaticity spectrophotometry;
- Part 2. Determination of crystallizing point;
- Part 3. Determination of permanganate absorption spectrophotometry value;
- Part 4. After distillation of volatile alkali content of titration;
- Part 5. 290nm wavelength measured absorbance;
- Part 6. Determination of acidity or alkalinity;
- Part 7. Determination of iron content;
- Part 8. Determination of cyclohexanone oxime content.

This section GB/T 13255 Part 5.

The partial modification of international standards ISO 7059. 1982 "industrial caprolactam --- 290nm wavelength absorbance measurement." this section according to ISO 7059. 1982 redrafted. This section lists the reg number in Appendix A and ISO 7059. 1982 reg Control list numbered.

Taking into account China's national conditions, this part adopting ISO 7059. 1982 time made some editorial changes, this portion of the ISO 7059.

1982 main technical differences are as follows.

- Analysis of water level defined by the "distilled water or equivalent purity" was changed

to "GB/T 6682-2008 stipulated three water" (ISO 7059. 1982 version of Chapter 3; Chapter 4 of this section);

--- An increase of 50% aqueous caprolactam "stand until the bubbles disappear" analysis step before measurement (ISO 7059. 1982 Edition 5.1; 4.1 part);

--- Added "The difference between two parallel determination results is not more than 0.010, the arithmetic average of the measurement results. The results shall be rounded to two decimal places "parallel test and results represents the content (ISO 7059. 1982 version of Chapter 6; Chapter 5 of this section).

This Part replaces GB/T 13255.5-1991 "Industrial caprolactam 290nm wavelength absorbance measurement." this section compared with the GB/T 13255.6-1991 The main changes are as follows.

--- Will analyze the water level defined as "third grade water GB/T 6682-1992 specified" (1991 edition, Chapter 4, Excerpts Chapter 4);

--- Added "Report" (see Chapter 6).

Appendix A of this section is an informative annex.

This part is proposed by the China Petroleum and Chemical Industry Association.

This part of the National Standardization Technical Committee on Organic Chemistry Club (SAC/TC63/SC2) centralized.

This section drafted by. China Petroleum & Chemical Corporation Baling Branch.

1 Scope

GB/T 13255 provisions of this part of the industry was determined by spectrophotometry absorbance at 290nm caprolactam wavelength.

2 Normative references

The following documents contain provisions which, through reference GB/T 13255 in this section constitute provisions of this section. For dated reference documents Member, all subsequent amendments (not including errata content) or revisions do not apply to this section, however, encouraged to reach under this section Parties to research agreement to use the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

GB/T 6682-2008 analytical laboratory use specifications and test methods (ISO 3696. 1987, MOD) GB/T 8170 repair numerical representation about rules and limit values
band judgment

3 Method summary

50% aqueous solution of caprolactam absorbance at 290nm wavelength was measured using a spectrophotometer.

4 Instrument

4.1

UV spectrophotometer. Accuracy $\pm 0.002A$.

4.2

quartz absorption cell. 2, optical path 1cm.

5 Step, Analysis

Analysis of water in this section shall comply with the third grade water GB/T 6682-2008 requirements.

5.1 Determination

Weigh 50.0g laboratory samples, accurate to 0.1g, placed in 250mL beaker, add 50mL water and stir to dissolve, and stand until the air Bubble disappears. The solution was poured into a quartz absorption cell, water is added another quartz cuvette at wavelength of 290nm, using water as a reference, UV spectrophotometer measure absorbance.

5.2 Absorbance corrected absorption cell

The water instead of sample solution was injected into absorption cell at 290nm wavelength measured absorbance difference between two absorption cell, namely the absorption cell absorbance Correction degree value. Correction should not exceed 0.003 absorbance.

6 Calculated results

X0 absorbance at 290nm wavelength according to equation (1).

$$X0 = A1 - A0 \quad (1)$$

Where.

--- The A1 sample solution was measured by absorbance values;

A0 --- absorption correction absorbance values

The difference between the two parallel determination results is not more than 0.010, the arithmetic average of the measurement results.

The results should be GB/T 8170 rounding to two decimal places.