

ICS 71.100.01
CCS G 55



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

GB/T 2401-2025

Replacing GB/T 2401-2006

**Cationic dyes - Determination of fibre saturation value, dye
saturation value and saturation factor in acrylic dyeing**

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Issued on: August 29, 2025

Implemented on: March 1, 2026

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document replaces GB/T 2401-2006 "Determination of fiber saturation value, dye saturation value and saturation factor when dyeing acrylic fibers with cationic dyes" Compared with GB/T 2401-2006, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) The terms and definitions have been changed (see Chapter 3, Chapter 3 of the 2006 edition);
- b) Changed the requirements for reagents and materials (Chapter 5, Chapter 5 of the 2006 edition);
- c) The general conditions for dyeing have been changed (see 7.1.1, 7.1.1 of the 2006 edition);
- d) The dye solution formula has been changed (see 7.1.2.1, 7.1.2.1 of the 2006 edition);
- e) The dyeing operation has been changed (see 7.1.2.2, 7.1.2.2 of the 2006 edition);
- f) The calculation formula for dye uptake percentage has been changed (see 7.1.3, 7.1.3 of the 2006 edition);
- g) Added the calculation formula of dye saturation value (see 7.1.4.1); changed the calculation formula of fiber saturation value (see 7.1.4.2, 2006 edition); 7.1.4);
- h) The determination of dye saturation value and saturation factor has been changed (see 7.2, 7.2 of the 2006 edition).

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document was proposed by the China Petroleum and Chemical Industry Federation.

This document is under the jurisdiction of the National Technical Committee on Standardization of Dyes (SAC/TC134).

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This document was first published in 1980, revised for the first time in 2006, and this is the second revision.

Fiber saturation value when dyeing acrylic with cationic dyes, Determination of dye saturation value and saturation factor

1 Scope

This document describes the determination of fiber saturation value, dye saturation value and saturation factor for acrylic fibers dyed with cationic dyes.

This document is applicable to the determination of fiber saturation value, dye saturation value and saturation factor when dyeing acrylic fibers with cationic dyes.

2 Normative references

GB/T 2374-2017

GB/T 2399-2014

GB/T 6687

GB/T 8170-2008

3 Terms and Definitions

The terms and definitions defined in GB/T 6687 apply to this document.

4 Principles

A refined product of cationic fluorescent yellow 4GL (CI basic yellow 24) with a known saturation factor was used to measure the The acrylic fiber with known fiber saturation

value (SF) is dyed, and the saturation limit is when the fiber absorbs 95% of the dye.

The fiber saturation value (SF) of the fiber is used to dye the dye, and the fiber's exhaustion rate of the dye reaches 95% is the saturation limit, and the saturation value (SD) and saturation factor f of the dye are calculated.

5 Reagents and Materials

Reagents and materials that comply with Chapter 3 of GB/T 2374-2017 should be used.

- a) acrylic yarn;
- b) glacial acetic acid;
- c) anhydrous sodium acetate;
- d) Refined cationic fluorescent yellow 4GL (CI Basic Yellow 24), with a known saturation factor f of 0.85.

6 Instruments and Equipment

The equipment used should meet the following requirements.