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FZ/T 01057.4-2007

Replacing FZ/T 01057.4-1999

Test Method for Identification of Textile Fibers - Part 4: Solubility

纺织纤维鉴别试验方法 第4部分：溶解法

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Foreword

FZ/T 01057 "Test Method for Identification of Textile Fibers" includes nine parts:

- Part 1: General Introduction;
- Part 2: Burning Behavior;
- Part 3: Microscopy;
- Part 4: Solubility;
- Part 5: Qualitative Observation of Color-production for Chloring and Nitrogen;
- Part 6: Fiber Melting Point;
- Part 7: Density Gradient Column Method;
- Part 8: Infrared spectrometry;
- Part 9: Birefraction.

This part is the fourth part of FZ/T 01057.

This Part replaces FZ/T 01057.4-1999 "Test Method for Identification of Textile Fibers - Solubility".

Compared with FZ/T 01057-1999, 11 parts in the former standard are integrated to 9 parts presented in a new sequence: Part 5 "Dye and Stain Tests" and Part 11 "Comprehensive Method" in the former standard are canceled; the former part 6 "Qualitative Observation of Color-production for Chloring and Nitrogen" is re-located to part 5; the former part 7 "Fibre Melting Point" is re-located to part 6; the former part 9 "Density Gradient Column Method" is re-located to part 7, and the former part 10 "birefraction" is re-located to part 9.

There are the following revisions to FZ/T 01057.4-1999:

- 1) Change the name of the standard to "Test Method for Identification of Textile Fibers - Part 4: Solubility";
- 2) Add chapter "Normative References";
- 3) Add chapter "Test Report";
- 4) Integrate "Test Number" into chapter "Procedure";
- 5) Add the method for preparation of copper-ammonia solution in chapter

Test Method for Identification of Textile Fibers – Part 4: Solubility

1 Scope

This Part of FZ/T 01057 specifies a test method for textile fiber identification - solubility method.

This Part is applicable to qualitative identification for textile fibers.

2 Normative References

Provisions of the following documents, through reference in this Part of FZ/T 01057, constitute the provisions of this Part. For dated reference, the subsequent amendments (excluding correction) or revisions of these publications do not apply. However, the parties who enter into an agreement according to this Part are encouraged to research whether the latest editions of these documents are applied or not. For undated references, the latest edition of the normative document is applicable to this part.

FZ/T 01057.1 Test Method for Identification of Textile Fibers - Part 1: General Introduction

3 Principle

A fiber may be identified by utilizing the different solubility property at different temperature and in different chemical agents.

4 Reagent

The reagents to be used are analytically pure or chemical pure; they include: concentrated sulphuric acid, concentrated nitric acid, formic acid, glacial acetic acid, fluohydric acid, sodium hydrate, sodium hypochlorite, potassium rhodanate, N,N-dimethylformamide, cyclohexanone, dimethylketone, phenol, tetrachloroethane, 1,4-butyrolactone, dimethylsulphoxide, dichloromethane, carbon tetrachloride, tetrahydrofuran, cupric hydroxide, ammonium hydroxide (stronger ammonia water) and acetic ether.

5 Instrument and Tool

the solubility results gotten differ significantly.

9 Solubility Properties of Common Textile Fibers

The solubility properties of common textile fibers are as shown in Table A.1 of Appendix A.

10 Test Report

The test report shall include the following information:

- a) The statement that the test complies with the requirements of this Part;
- b) The information of the sample;
- c) The defect from the specified procedure;
- d) The solubility condition of the sample; and
- e) The fiber type of the sample.

Fiber	Solution (solvent)											
	95%~98%		70%		60%		40%		36%~38%		15%	
	Sulfuric acid solution		Sulfuric acid solution		Sulfuric acid solution		Sulfuric acid solution		Hydrochloric acid		Hydrochloric acid	
	24°C~30°C	Boiling	24°C~30°C	Boiling	24°C~30°C	Boiling	24°C~30°C	Boiling	24°C~30°C	Boiling	24°C~30°C	Boiling
Cotton	S	S ₀	S	S ₀	I	S	I	P	I	P	I	P
Hemp	S	S ₀	S	S ₀	P	S ₀	I	S ₀	I	P	I	P
Natural silk	S	S ₀	S ₀	S ₀	S	S ₀	I	S ₀	P	S	I	P
Animal plush	I	S ₀	I	S ₀	I	S ₀	I	S ₀	I	P	I	I
Viscose	S ₀	S ₀	S	S ₀	P	S ₀	I	S	S	S ₀	I	P
Lyocell fiber	S ₀	S ₀	S	S ₀	S	S	I	S ₀	S	S ₀	I	P
Modal fiber	S ₀	S ₀	S	S ₀	S	S	I	S	S	S ₀	I	P
Copper ammonia fiber	S ₀	S ₀	S ₀	S ₀	S ₀	S ₀	I	S ₀	I	S ₀	I	P
Acetate fiber	S ₀	S ₀	S ₀	S ₀	S	S ₀	I	I	S	S ₀	I	S
Triacetate fiber	S ₀	S ₀	S ₀	S ₀	S	S ₀	I	I	S	S ₀	I	P
Soybean fiber	P	S ₀	P	S ₀	P	S ₀	I	S ₀	P	S ₀	P	S ₀
Modified milk-protein polyacrylonitril fiber	S	S ₀	I	S ₀	I	S ₀	I	I	I	I	I	I
Polylactic acid fiber	S	S ₀	I	S	I	I	I	I	I	I	I	I
Dacron	S	S ₀	I	P	I	I	I	I	I	I	I	I
Acrylon	S	S ₀	S	S ₀	I	S ₀	I	I	I	I	I	I
Polyamide fiber 6	S	S ₀	S	S ₀	S	S ₀	S ₀	S ₀	S ₀	S ₀	S	S ₀
Polyamide fiber 66	S ₀	S ₀	S	S ₀	S	S ₀	S	S ₀	S ₀		I	
Elastane	S	S ₀	S	S	I	S ₀	I	P	I	I	I	I
Polyvinyl alcohol fiber	S	S ₀	S	S ₀	S	S ₀	P	S ₀	S ₀		I	S
Polyvinyl chloride fiber	I	I	I	I	I	I	I	I	I	I	I	I
Polyvinylidene chloride fiber	I	I	I	I	I	I	I	I	I	I	I	I
Polyethylene fiber	I	□	I	□	I	□	I	I	I	I	I	I

Modified milk-protein polyacrylonitril fiber	I	I	I	I	I	I	I	I
Polylactic acid fiber	I	P	P	P	P	P	I	S
Dacron	I	I	I	I	I	I	I	I
Acrylon	I	I	I	I	I	I	I	I
Polyamide fiber 6	I	I	I	I	I	I	I	I
Polyamide fiber 66	I	I	I	I	I	I	I	I
Elastane	I	I	I	I	I	I	I	I
Polyvinyl alcohol fiber	I	I	I	I	I	I	I	I
Polyvinyl chloride fiber	I	P	S	S ₀	S	S ₀	P	S ₀
Polyvinylidene chloride fiber	I	I	I	I	I	S ₀	I	I
Polyethylene fiber	I	I	I	I	I	I	I	I
Polypropylene fiber	I	P	I	I	I	I	I	I
Aromatic polyamide fiber	I	I	I	I	I	I	I	I
Polystyrene fiber	S ₀	—	P	P	P	P	S	S ₀
Carbon fiber	I	I	I	I	I	I	I	I
Phenolic fiber	I	I	I	I	I	I	I	I
Polysulphonamide fiber	I	I	I	I	I	I	I	I
Amide-oxadiazole fiber	I	I	I	I	I	I	I	I
Polytetrafluoroethylene fiber	I	I	I	I	I	I	I	I
Asbestos	I	I	I	I	I	I	I	I
Glass fiber	I	I	I	I	I	I	I	I

Note 1: the symbols and their descriptions are as follows:

S₀ — Immediately soluble; S — Soluble; P — Partially soluble; Pss — Slightly soluble; □ — Lumpy; I — Insoluble; Δ — Swelling.

Note 2: other method should be used for identification of asbestos and glass fiber, and they may be dissolved with fluohydric acid if necessary.

END