

ICS 59.080.30  
CCS W 04



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

**GB/T 24254-2009**

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**Textile and clothing -- Determination and interpretation of cold  
stress when using required clothing insulation (IREQ) and local  
cooling effects**

纺织品和服装 冷环境下需求热阻的确定

**(English Translation)**

**Issued on: June 19, 2009**

**Implemented on: February 1, 2010**

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**Issued by: Standardization Administration of China**

## Table of Contents

Foreword

Introduction

1 Scope

2 Normative references

3 Terms and definitions, symbols

3.1 Terms and Definitions

3.2 Symbol

### Foreword

This revised standard adopts ISO 11079:2007 "Thermal Environmental Ergonomics with thermal clothing needs and local cooling effect of cold stress Identification and interpretation. " this standard and ISO 11079:2007 main differences are as follows.

--- Standard title changed to "Demand Textiles and Clothing cold ambient thermal resistance determination";

--- Standard "Normative references" used in reference included in the "References";

--- Increased in Appendix C Table C. 3 "one-piece garment basic resistance Reference Table (test method based on thermal manikin, ISO 9920)" and

Table C. 4 "basic textile materials thermal resistance (Icl) include (based on evaporation hot plate test, GB/T 11048)";

--- Added Appendix G "major cities in China temperature tables." Appendix A of this standard is a normative appendix, Appendix B, Appendix C, Appendix D, Appendix E, Appendix F, Appendix G is an informative annex.

The standard proposed by China Textile Industry Association.

This standard by the National Standardization Technical Committee on Basic Standards Subcommittee Textiles (SAC/TC209/SC1) centralized.

This standard was drafted. National Textile Products Quality Supervision and Inspection Center, 3M China Limited.

### Introduction

In the case of air-cooled cold environments commonly encountered, but it is the first low-temperature thermal equilibrium of the body harm. Through appropriate clothing,

textiles, Clothing adjustment, often can control and regulate body heat loss, and changes in the surrounding environment to achieve thermal equilibrium. This standard gives dimensional assessment Clothing Thermal Resistance to balance needed to maintain body heat. Heat balance equation with reference to the latest scientific research heat exchange between the surface of the skin and clothing result.

Identify needs thermal resistance under cold environment, textiles and clothing

## 1 Scope

This standard specifies the exposure to cold ambient thermal stress evaluation rules and methods.

This standard applies to continuous, intermittent and occasional exposure to indoor and outdoor type of work. Does not apply to certain meteorological phenomena (Such as precipitation) specific effects associated.

## 2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 5453 Textiles - Determination of permeability (GB/T 5453-1997, eqvISO 9237.1995)  
GB/T 11048 Textiles physiological Determination of thermal resistance and moisture resistance under steady-state conditions of comfort (GB/T 11048-2008, ISO 11092:1993, MOD) GB/T 18048 Determination of the thermal environment Ergonomics metabolic rate (GB/T 18048-2008, ISO 8996:2004, IDT)

### 3.1 Terms and Definitions

The following terms and definitions apply to this standard.

#### 3.1.1

In major or decompensation of physiological strain, the body heat exchange (heat loss) is far greater than or equal to the climatic conditions of thermal equilibrium (heat liabilities).

#### 3.1.2

In major and occasional decompensation physiological strain, the body heat exchange (heat loss) is exactly equal to or smaller than the climatic conditions of thermal equilibrium (heat storage).

#### 3.1.3

## IREQ

Under physiological strain levels defined to maintain body heat balance when required clothing insulation.

### 3.1.4

The body to maintain thermal equilibrium temperature range, but does not include vasomotor reactions.

### 3.1.5

And local skin temperature associated with the cold.

## 3.2 Symbol

The following symbols apply to this standard.