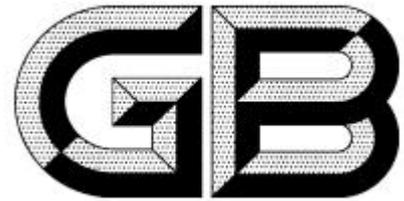


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Safety technical specifications for construction waterproof coatings

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Foreword

This document is drafted in accordance with the provisions of GB/T 1.1-2020 Guidelines for Standardization - Part 1: Rules for the Structure and Drafting of Standardization Documents.

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This document is proposed and administered by the Ministry of Industry and Information Technology of the People's Republic of China.

Safety technical specifications for construction waterproof coatings

1 Scope

This document specifies the safety technical requirements for building waterproof coatings and describes the corresponding test methods.

This document is applicable to flexible waterproof coatings, cement-based waterproof materials, and other waterproof materials of liquid-type, two-component liquid-powder type and powder-type for construction engineering.

2 Normative References

The contents of the following documents constitute indispensable provisions of this document through normative references herein. For dated referenced documents, only the edition corresponding to the specified date applies to this document; for undated referenced documents, the latest edition (including all amendments) applies to this document.

GB/T 267 Determination of Flash Point and Fire Point of Petroleum Products (Open Cup Method)

GB/T 6682 Specifications and Test Methods for Water Used in Analytical Laboratories

GB 8624 Classification of Burning Behavior for Building Materials and Products

GB/T 8626 Test Methods for Flammability of Building Materials

GB/T 16777—2008 Test Methods for Building Waterproof Coatings

GB/T 18244—2022 Test Methods for Aging Resistance of Building Waterproof Materials

GB 18583 Limit of Harmful Substances in Adhesives for Indoor Decoration and Finishing Materials

GB/T 35468—2017 Root Resistance Waterproof Membranes for Green Roofs

GB/T 41078—2021 Test Methods for Harmful Substances in Building Waterproof Materials

GB/T 50082 Standard for Test Methods of Long-term Performance and Durability of Concrete

DL/T 5126—2021 Test Specification for Polymer-modified Cement Mortars

JGJ/T 70 Standard for Test Methods of Basic Properties of Building Mortars

JG/T 245 Vibrating Tables for Concrete Testing

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Flexible Waterproof Coating

A flexible waterproof material that is in a liquid or paste state prior to construction, and forms a coating of a certain thickness via cooling, volatilization, and reactive curing after construction.

Note: This includes waterborne waterproof coatings, reactive polymer waterproof coatings, solvent-based waterproof coatings, and hot-melt applied waterproof coatings. For the relevant product categories, refer to Appendix A.

3.2 Waterborne Waterproof Coating

A flexible waterproof coating that uses water as the dispersion medium and cures to form a film through water volatilization or water discharge via chemical reaction.

Note: This includes polymer emulsion-based waterproof coatings and waterborne polymer-bitumen waterproof coatings.

3.3 Polymer Emulsion Waterproof Coating

A waterborne waterproof coating that takes synthetic polymer emulsion as the main component, incorporates additives and/or fillers, and cures to form a film through water volatilization or water discharge via chemical reaction.

Note: Classified by component type, it includes single-component liquid type, multi-component liquid type, and two-component liquid-powder type.

3.4 Waterborne Polymer Asphalt Waterproof Coating

A waterborne waterproof coating that takes polymer-modified asphalt emulsion or a mixture of polymer emulsion and asphalt emulsion as the main component, incorporates additives and/or fillers, and cures to form a film through water volatilization or water discharge via chemical reaction.

Note: Classified by component type, it includes single-component liquid type and multi-component liquid type.

3.5 Reactive Polymer Waterproof Coating

A flexible waterproof coating with a solid content of not less than 85%, which takes polymer materials as the main film-forming substances, incorporates additives and/or fillers, and cures to form a film via reaction with moisture in the air or chemical cross-linking reaction of the product itself.

Note: Classified by component type, it includes single-component liquid type and multi-component liquid type.

3.6 Solvent-borne Waterproof Coating

A flexible waterproof coating with a solid content of less than 85%, which cures to form a film through solvent volatilization and/or chemical reaction.

Note: Classified by component type, it includes single-component liquid type and multi-component liquid type.

3.7 Hot Melt Waterproof Coating

A single-component flexible waterproof coating that is solid or viscous at room temperature and constructed by heating and melting.

Note: It includes rubber-bitumen type and polymer type (also referred to as non-bitumen-based type).

3.8 Cement-based Waterproof Material

A waterproof material that takes cement as the main component, contains redispersible polymer powder or active chemical substances, is generally used after mixing with water or combined with a liquid component dominated by polymer emulsion, and exhibits a certain level of impermeability after curing.

Note: It includes polymer cement waterproof mortar, polymer cement waterproof slurry, and cementitious capillary crystalline waterproof materials, covering powder type and two-component liquid-powder type. For the relevant product categories, refer to Appendix A.

4 Technical Requirements

4.1 Combustion Performance

For the cured film of flexible waterproof coatings intended for exposed application, its combustion performance rating shall not be lower than Class B2 as specified in GB 8624.

4.2 Flash Point

The flash point of hot-melt applied waterproof coatings shall not be lower than 200 °C.

4.3 Limit of Harmful Substances

4.3.1 The content of harmful substances in waterborne waterproof coatings shall comply with the limits specified in Table 1. This requirement shall also apply to the two-component liquid-powder type of cement-based waterproof materials, as well as the waterborne liquid-type and two-component liquid-powder-type products among other waterproof materials.

Table 1: Limits of Harmful Substances in Waterborne Waterproof Coatings

Serial No.	Item	Limit Value
1	Volatile Organic Compounds (VOC) Content ^[a] / (g/L)	≤50
2	Formaldehyde Content ^[a] / (mg/kg)	≤50
3	Ammonia Content ^[a] / (mg/kg)	≤1000
4	Benzene Content ^[a] / (mg/kg)	≤20

5	Content of Toluene + Ethylbenzene + Xylenes ^[a] / (mg/kg)		≤100
6	Total Lead (Pb) Content / (mg/kg)		≤90
7	Content of Soluble Heavy Metals / (mg/kg)	Cadmium (Cd) Content / (mg/kg)	≤75
		Chromium (Cr) Content / (mg/kg)	≤60
		Mercury (Hg) Content / (mg/kg)	≤60

[a] Water dilution ratio is not considered.

4.3.2 The content of harmful substances in reactive polymer waterproof coatings shall comply with the limits specified in Table 2. This requirement shall also apply to the reactive liquid materials among other waterproof materials.

Table 2: Limits of Harmful Substances in Reactive Polymer Waterproof Coatings

Serial No.	Item	Limit Value	
1	Volatile Organic Compounds (VOC) Content ^[a] / (g/L)	Single-component ≤ 200; Multi-component ≤ 100	
2	Benzene Content / (mg/kg)	≤50	
3	Content of Toluene + Ethylbenzene + Xylenes / (g/kg)	≤2.0	
4	Phenol Content / (mg/kg)	≤100	
5	Anthracene Content / (mg/kg)	≤10	
6	Naphthalene Content / (mg/kg)	≤200	
7	Free Diisocyanates (Free TDI) Content ^[b] / (g/kg)	≤3	
8	Short-chain Chlorinated Paraffins (C ₁₀ ~C ₁₃) Content / (g/kg)	≤0.1	
9	Total Lead (Pb) Content / (mg/kg)	≤90	
10	Content of Soluble Heavy Metals / (mg/kg)	Cadmium (Cd) Content / (mg/kg)	≤75
		Chromium (Cr) Content / (mg/kg)	≤60
		Mercury (Hg) Content / (mg/kg)	≤60

When the mixing ratio of multi-component products falls within a certain range, the determination and calculation shall be performed in accordance with the most unfavorable ratio specified in the product mixing ratio.

[a] The limit value for multi-component quick-setting spray polyurea waterproof coatings is: ≤ 30 g/kg.

[b] Testing applies only to products manufactured with isocyanates as raw materials.