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Plasticized polyvinyl chloride compounds

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Descriptors : plasticized polyvinyl chloride, electric cables, plastics, insulating coatings, electrical insulating materials

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of International Trade and Industry through deliberations at Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law:

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Plasticized polyvinyl chloride compounds

1 Scope This Standard specifies the plasticized polyvinyl chloride compounds, (hereinafter referred to as the "compounds"), used for the polyvinyl chloride insulated wire, polyvinyl chloride cord and cable sheath for 600 V.

Remarks 1 The standards cited in this Standard are as follows:

JIS B 7503	*Dial gauges*
JIS C 2320	*Electrical insulating oils*
JIS K 6258	*Testing methods of the effect of liquids for vulcanized rubber*
JIS K 7113	*Testing method for tensile properties of plastics*
JIS K 7212	*General rules for tests for thermal ageing properties of thermoplastics in the form of sheet by means of ovens*
JIS K 7216	*Testing method for brittleness temperature of plastics*
JIS K 8295	*Glycerol*
JIS R 3503	*Glass apparatus for chemical analysis*

2 The international standards corresponding to this Standard are as follows:

ISO 182-1 : 1990	*Plastics — Determination of the tendency of compounds and products based on vinyl chloride homopolymers and copolymers to evolve hydrogen chloride and any other acidic products at elevated temperatures — Part 1: Congo red method*
ISO 291 : 1977	*Plastics — Standard atmospheres for conditioning and testing*
ISO R 527 : 1966	*Plastics — Determination of tensile properties*
ISO 974 : 1980	*Plastics — Determination of the brittleness temperature by impact*
ISO 2898 : 1986	*Plastics — Plasticized compounds of homopolymers and copolymers of vinyl chloride (PVC-P) — Part 1: Designation, Part 2: Preparation of test specimens and determination of properties*

3 The units and the numerical values given in { } in this Standard are based on the traditional units, and are appended for reference.

2 Classification The classification of compounds shall be as shown in Table 1.

Table 1 Classification

Class		Remark
Class 1	No. 1	For general insulation
	No. 2	For general cord
	No. 3	For general sheath
Class 2	No. 1	For heat-proof insulation
	No. 2	For heat-poof cord
	No. 3	For heat-poof sheath

3 Quality The compounds shall be tested in accordance with **6** and shall conform to the requirements specified in Table 2.

Table 2 Quality

Test Item \ Class			Class 1			Class 2			Applicable sub-clauses
			No. 1	No. 2	No. 3	No. 1	No. 2	No. 3	
Tensile test		Tensile strength MPa {kgf/mm²}	Not less than 14.7 {1.5}	Not less than 12.7 {1.3}	Not less than 11.8 {1.2}	Not less than 14.7 {1.5}	Not less than 12.7 {1.3}	Not less than 11.8 {1.2}	6.3
		Elongation %	Not less than 180	Not less than 180	Not less than 200	Not less than 180	Not less than 180	Not less than 200	
Tensile test after heating	100 ℃ ± 2 ℃	Retention of tensile strength %	Not less than 90	Not less than 90	Not less than 90	–	–	–	6.4
		Retention of elongation %	Not less than 70	Not less than 70	Not less than 70	–	–	–	
	120 ℃ ± 3 ℃	Retention of tensile strength %	–	–	–	Not less than 90	Not less than 90	Not less than 90	
		Retention of elongation %	–	–	–	Not less than 80	Not less than 75	Not less than 80	
Heat deformation rate %			Not more than 40	Not more than 40	Not more than 40	Not more than 25	Not more than 25	Not more than 25	6.5
Low temperature resistance			No breakage at a temperature in Table 4						6.6
Heat stability h			Not less than 2	Not less than 2	Not less than 2	Not less than 2	Not less than 2	Not less than 2	6.7
Volume resistivity		30 ℃ ± 0.5 ℃ Ω cm	Not less than 5×10^{13}	Not less than 1×10^{12}	–	Not less than 5×10^{13}	Not less than 1×10^{12}	–	6.8
		60 ℃ ± 0.5 ℃ Ω cm	Not less than 5×10^{11}	Not less than 1×10^{10}	–	–	–	–	
		75 ℃ ± 0.5 ℃ Ω cm	–	–	–	Not less than 2×10^{11}	Not less than 5×10^{9}	–	
Oil resistance		Retention of tensile strength %	Not less than 85	–	Not less than 85	Not less than 85	–	Not less than 85	6.9
		Retention of elongation %	Not less than 80	–	Not less than 75	Not less than 85	–	Not less than 75	