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MT 141-2005

Replacing MT 141-1986

Plastic net protecting top-plane in coal mining

煤矿井下用塑料网假顶带

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Foreword

Clause 4.4, 4.5, 4.6, 4.7, 4.8 and 4.9 of this standard are mandatory, AND the rest is recommended.

This standard is the revision of MT 141-1986 “Specification for inspection of plastic net protecting top-plane in coal mining”. AND this standard replaces MT 141-1986 from the date of implementation.

As compared with MT 141-1986, the main changes of this standard are as follows:

- ADD the tensile strength requirements (SEE 4.7);
- ADD the determination of the flame temperature of the alcohol torch (SEE 5.7.3.3);
- ADD the Appendix A;
- MODIFY the model preparation method (clause 1.1 of 1986 version; clause 3 of this version);
- MODIFY the preparation of the sample the surface of which is coated with a conductive layer (clause 9.2 of 1986 version; clause 5.6.1.1 of this version);
- DELETE the contents of the fuel consumption amount (clause 5.2.5 of 1986 version);
- CANCEL the requirements for the width and thickness of plastic net (clause 2.2.1 and 2.2.2 of 1986 version).

Appendix A of this standard is normative.

This standard was proposed by China Coal Industry Association Science and Technology Development Department.

This standard shall be under the jurisdiction of the Coal Industry Coal Mine Safety Standardization Technical Committee.

The drafting organization of this standard: Coal Science Research Institute Shanghai Branch.

The main drafters of this standard: Ju Qinghua, Zheng Qi, Jiang Naiqiang, Yuan Kailiang.

This standard was first published in July 1986.

Plastic net protecting top-plane in coal mining

1 Scope

This standard specifies the product model, requirements, test methods, inspection rules, marking, packaging, transportation and storage of the plastic net protecting top-plane in coal mining (hereinafter referred to as top-plane protection net).

This standard applies to plastic net protecting top-plane in coal mining.

2 Normative references

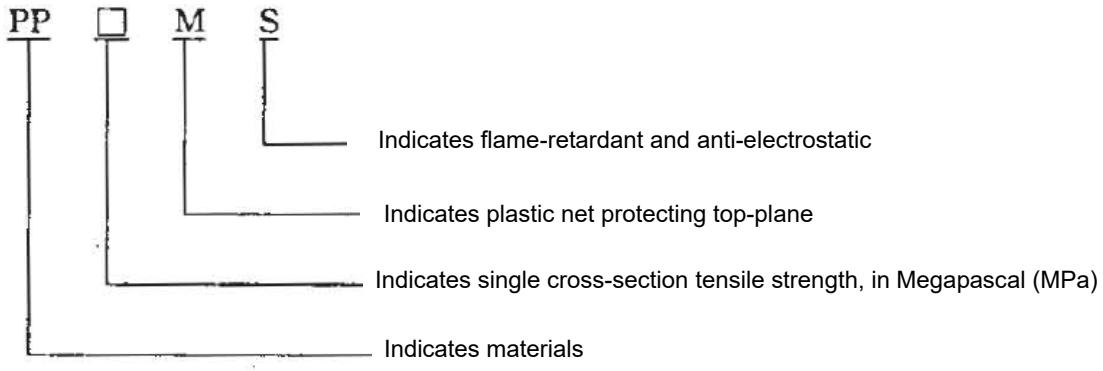
The provisions in following documents become the provisions of this Standard through reference in this Standard. For the dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this Standard; however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

MT 182-1998 Alcohol blast burner structure and technical requirements

MT 113-1995 General test methods and judgment rules for fire-resistant antistatic properties of polymer products for coal mine

3 Top-plane protection plastic net model

The model of the top-plane protection net is divided into 160MS, 180MS, 200MS, 220MS, 240MS, 260MS and 280MS in accordance with the single cross section tensile strength. Model example is as follows:



4 Requirements

4.1 Appearance quality

b) If started time keeping from the time when the sample flame is extinguished, the arithmetic mean of the flameless combustion time of the 6 samples shall be less than 10 s, wherein the single value of the flameless combustion time of any one of the samples shall be less than 30 s.

4.9.2 Alcohol lamp combustion performance

The top-plane protection net shall, through the alcohol lamp combustion test, comply with the following requirements:

a) After removing the alcohol lamp, the arithmetic mean of the flame combustion time of the 6 samples shall be less than 6 s, wherein the single value of the flame combustion time of any one of the samples shall be less than 12 s.

b) If started time keeping from the time when the sample flame is extinguished, the arithmetic mean of the flameless combustion time of the 6 samples shall be less than 10 s, wherein the single value of the flameless combustion time of any one of the samples shall be less than 30 s.

4.10 Specifications of top-plane protection plastic net

The general specifications of the top-plane protection plastic net are as shown in Appendix A.

5 Test methods

5.1 Sample preparation

After the product was made 24 h, TAKE the sample.

5.2 Appearance quality

CUT one piece of sample having a length of not less than 10 m; PERFORM visual inspection.

5.3 Specification size inspection

CUT one piece of sample having a length of 1m; USE a Vernier caliper having a precision of 0.02 mm to measure width at any 5 points along the parallel direction; TAKE the arithmetic mean; LEAVE 2 places after the decimal point; ROUND off to 1 place after the decimal point; USE a Vernier caliper having a precision of 0.02 mm to measure thickness at any 5 points; TAKE the arithmetic mean; LEAVE 2 places after the decimal point; ROUND off to 1 place after the decimal point.

5.4 Skewness test

c) Respectively CALCULATE the tensile strength and tensile elongation at fracture of each group of 5 samples, and CALCULATE the arithmetic mean of the tensile strength and the tensile elongation at fracture of each group of samples, TAKE the integer.

5.6 Surface resistance test

5.6.1 Sample preparation

5.6.1.1 TAKE a certain number of top-plane protection nets; USE the hot pressing method to prepare them into circular or square sheet samples the surface of which is flat and smooth; the sample thickness is (1 ± 0.2) mm, the sample diameter or edge length is not less than 100 mm, and the number of sample is 3; AND if the sample surface is coated with conductive layer, it shall arrange the top-plane protection nets in parallel into square sample, AND press it flatly before using it as the sample for the measurement of the surface resistance.

5.6.1.2 USE the clean silk cloth or sterilized cotton cloth which is dampened with distilled water to clean the sample; then USE a clean dry cloth to wipe the sample dry; PLACE it in a dry place for over 24 h; before the arbitration test, PLACE the sample in a dry place for 7 days before making the test.

5.6.1.3 Before the test, PLACE the sample in an environment having a temperature of (25 ± 5) °C and a relative temperature of 60% ~ 70% for at least 2 h.

5.6.2 Conductive liquid

The composition of the conductive liquid (mass percentage) is:

Anhydrous polyethylene glycol having a molecular weight of 600: 79.9%

Soft soap: 0.1%

Water: 20.0%

5.6.3 Instrument

5.6.3.1 Surface resistance tester:

The measuring range is 10^3 ~ 10^{10} Ω, the accuracy is 10%, the DC power supply voltage range is 50 ~ 500 V, AND the choice of voltage shall be based on the conditions that the power consumption of the sample does not exceed 1 W.

5.6.3.2 Electrode:

USE a cylindrical coaxial copper pillar and a copper ring to make electrode, the size of which is as shown in Figure 2. The base surface of the inner electrode is round, the base surface of the outer electrode is ring, the base surfaces of

length of about 100 mm, OR through the thermometer which complies with the temperature measurement requirements. When measuring the temperature, KEEP the bare copper wire at a position 50 mm above the alcohol combustion nozzle; AND if the bare copper wise can be blown within 6 s, it is deemed as reaching to the flame temperature.

5.7.3.4 During the test, the sample surrounding air flow shall be minimized, in order to avoid influencing the flame burning the sample.

5.7.3.5 During the test, the fuel level in the container shall be kept within the range (600 ± 20) mm away from the alcohol blast burner nozzle, as shown in Figure 3.

5.7.3.6 During the test, PLACE the sample in the flame to burn it, and appropriately MOVE the sample to ensure that the relative position between the sample and the blast burner is always maintained at the testing position as shown in Figure 3.

5.7.3.7 The sample burning duration in the flame shall be at least 5 s AND at most 10 s, BUT the flame combustion time of the same group of 6 samples shall be consistent.

5.7.3.8 During the test, the flame combustion time and flameless combustion time of the dripping which falls onto the plate shall be included into the combustion test time of this sample.

5.7.4 Result presentation

It shall record AND calculate the following test results:

a) The flame combustion time and flameless combustion time single value of each sample;

b) The arithmetic mean of the flame combustion time and the arithmetic mean of the flameless combustion time of the 6 samples;

c) The average combustion time is taken as two places after the decimal point, which is rounded off to one place after the decimal point.

5.8 Alcohol lamp combustion test

5.8.1 Sample preparation

CUT 6 pieces of straight top-plane protection net to form a group of samples; AND the length of each piece of sample is 250 mm; HANG the samples in room temperature to make it freely exposed in the air for at least 6 h.

5.8.2 Test conditions

5.8.2.1 The test equipment consists of a 250 mL capacity medical alcohol lamp AND a timer having a resolution of 0.01 s. During the test, the amount of

e) The results of the exit-factory inspection are inconsistent with the previous type inspection results 4;

f) When the state quality supervision institute proposes the type inspection requirements.

6.2.2 Type inspection samples shall be taken from the products passing the exit-factory inspection; AND the type inspection items are as shown in Table 2.

6.2.3 The product sampling method is random sampling, the product sampling base is 200 kg, And the sampling quantity is 2 kg.

6.3 Determination rules

6.3.1 Qualification conditions

Compliance with any of the following conditions is judged as qualified:

a) All inspection items are qualified:

b) One inspection item is disqualified, BUT it is qualified if taking double number of samples for reinspection of this item.

6.3.2 Disqualification conditions

Compliance with any of the following conditions is judged as disqualified:

a) One inspection item is disqualified, AND it is still disqualified if taking double number of samples for reinspection of this item;

b) Two or more of the inspection items are disqualified.

7 Marking, packaging, transportation and storage

7.1 Marking

7.1.1 Each roll of top-plane protection net shall have a clear marking, indicating the following information:

a) The “safety mark” identification and its number;

b) Name of the manufacturer;

c) Date of manufacture;

d) Model;

e) Width;

f) Thickness.

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