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

MT/T 1078-2008

**Direct current power supply with intrinsically safe output for a
coal mine**

矿用本质安全输出直流电源 清晰版

(English Translation)

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Foreword

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

This Standard shall be under jurisdiction of Technical Committee for Standardization of Equipment for Coal Mining in Coal Industry.

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Direct current power supply with intrinsically safe output for a coal mine

1 Scope

This Standard specifies the product classification, technical requirements, test methods, inspection rules, mark, packaging, transportation and storage of direct current power supply with intrinsically safe output for a coal mine.

This Standard applies to direct current power supply with intrinsically safe output for a coal mine (hereinafter referred to as DC power supply).

2 Normative references

The provisions in following documents become the provisions of this Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrigendum) 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.

GB/T 191 Packaging - Pictorial marking for handling of goods (GB/T 191-2000, eqv ISO 780.1997)

GB/T 2423.1 Environmental testing for electric and electronic and electronic products - Part 2. Test methods - Tests A. Cold (GB/T 2423.1-2001, idt IEC 60068-2-1.1990)

GB/T 2423.2 Environmental testing for electric and electronic products - Part 2. Test methods - Tests B. Dry heat (GB/T 2423.2-2001, idt IEC 60068-2-1.1990)

GB/T 2423.3 Basic environmental testing procedures for electric and electronic products - Test Ca. Damp heat, steady state (GB/T 2423.2-1992, eqv IEC 68-2-3.1984)

GB/T 2423.4 Basic environmental testing procedures for electric and electronic products - Test Db. Damp heat, cyclic (GB/T 2423.4-1993, eqv IEC 68-2-3.1980)

GB/T 2423.5 Environmental testing for electric and electronic products - Part 2. Test methods - Test Ea and guidance. Shock (GB/T 2423.5-1995, idt IEC 68-2-27.1982)

GB/T 2423.10 Environmental testing for electric and electronic products - Part 2. Test methods - Test Fc and guidance. Vibration (Sinusoidal) (GB/T 2423.10-1995, idt IEC 68-2-6.1982)

3.1 Model

Model of product shall be in accordance with the specifications of MT/T 286.

4.1 General requirements

DC power supply shall meet the requirements of this Standard, MT/T 1004, AQ 6201, etc., and shall be produced according to drawing and technical documents approved by specified procedure.

4.4.1 AC rated input voltage

AC rated input voltage shall meet input of 127 V and 220 V, it can also be chosen from

4.5.2 It shall have current-limiting, voltage limiting and short circuit protection function,

thus automatic recovery can be made after fault is removed.

4.8 Protective function of enclosure

Protective function of enclosure shall be in accordance with GB 3836.1 ~ GB 3836.4, GB 3836.9, GB 12173 and other relevant standards.

4.9.1 Insulation resistance between circuit with power of DC power supply and

grounding (or enclosure) shall be in accordance with Table 4. Measurement locations shall be specified in relevant standards.

4.14.4 AC power supply shall pass storage in low temperature working test; the main

technical parameters, functions and appearance shall not be below requirements of this Standard.

4.15 Explosion-proof performance

AC power supply of explosion proof type shall be in accordance with the relevant specifications of GB 3836.1 ~ GB 3836.4 and GB 3836.9, which shall have dual or multiple current-limiting, voltage limiting and circuit protection function.

4.16 Performance of mining general type

Performance of mining general type shall be in accordance with the specifications of GB 12173.

4.17.1 The highest output voltage shall meet requirements of intrinsically safe explosion proof and shall be specified in relevant standards.

4.17.2 Maximum output current shall meet requirements of intrinsically safe explosion proof and shall be specified in relevant standards.

5.1 Environmental conditions

Unless otherwise specified in environmental test and relevant standards, test shall be conducted in the following environmental conditions.

5.2.1.2.3 Artificial load. Adjust the artificial load to obtain load current, maximum output current and circuit current that are needed by AC power supply output test.

5.2.1.2.4 Voltage regulator. it shall be in accordance with requirements of relevant standards.

5.2.1.2.5 Oscilloscope, storage oscilloscope and video milli-voltmeter. it shall meet requirements of relevant standards.

5.2.2 Test circuit

Connect test equipment according to figure 1, S1 and S2 in figure are single-phase switches.

Figure 1 Test circuit

5.2.3.5 Current limiting and short circuit protection function

SET source voltage as specified maximum value, ADJUST artificial load to make load current gradually increase to output short circuit. OBSERVE ampere meter (A), the maximum current is maximum output current of AC power supply, final indicating value is short circuit current of AC power supply. REMOVE over-current and short-circuit faults, INSPECT whether AC power supply can recover by itself or not. CARRY out test for 5 times continuously.