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**Cadmium zinc telluride polycrystalline for high energy ray
detection and imaging materials**

高能射线探测及成像材料用碲锌镉多晶

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Cadmium zinc telluride polycrystalline for high energy ray detection and imaging materials

1 Scope

This document specifies the technical requirements, test methods, inspection rules, as well as marks, packaging, transportation, storage, accompanying documents and purchase order for cadmium zinc telluride polycrystalline for high energy ray detection and imaging materials.

This document applies to cadmium zinc telluride polycrystalline for high energy ray detection and imaging materials made of high-purity tellurium, high-purity zinc, high-purity cadmium (hereinafter referred to as cadmium zinc telluride polycrystalline).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 8170, *Rules of rounding off for numerical values and expression and judgement of limiting values*

GB/T 41769, *Methods for chemical analysis of cadmium zinc telluride - Determination of zinc and cadmium contents - Inductively coupled plasma atomic emission spectrometry*

YS/T 917, *Chemical analysis methods for high purity cadmium - Determination of trace impurity elements content - Glow discharge mass spectrometry*

YS/T 1227.1, *Rough chemical analysis methods - Part 1: Determination of tantalum content - Gravimetric method*

3 Terms and definitions

This document does not have terms and definitions that need to be defined.

4 Technical requirements

4.1 Chemical composition

polycrystalline is carried out in accordance with the provisions of GB/T 41769.

5.1.3 The determination of impurity components in cadmium zinc telluride polycrystalline is carried out in accordance with the provisions of YS/T 917.

5.2 Physical specifications

The size of cadmium zinc telluride polycrystalline and its allowable deviation are measured with measuring tools of corresponding precision.

5.3 Internal quality

Cut samples with a wire cutter or internal circle cutter. There are white bright spots on the cutting interface as elemental inclusions.

5.4 Appearance quality

Appearance quality is measured by visual inspection method.

6 Inspection rules

6.1 Inspection and acceptance

6.1.1 The product is inspected by the supplier or a third party to ensure that the product quality complies with the provisions of this document and the purchase order.

6.1.2 The purchaser can inspect the received products in accordance with the provisions of this document. If the inspection result is inconsistent with the provisions of this document or the purchase order, it shall be reported to the supplier within 3 months from the date of receipt of the product. The supplier and the purchaser shall negotiate to resolve it. If arbitration is required, the sampling for arbitration shall be carried out jointly by both the supplier and the purchaser.

6.2 Batching

Products shall be submitted in batches for inspection. Each batch is composed of products of the same production cycle. The batch weight is not more than 5 kg.

6.3 Inspection items

Each batch of products shall be inspected for chemical composition, physical specification, internal quality and appearance quality.

6.4 Sampling and sample preparation

6.4.1 It shall randomly extract not less than 20 blocks from each batch as arbitration sampling for the chemical analysis of cadmium zinc telluride polycrystalline. Knock

part of the material from each block. Then crush until visually most of them can pass through 150 μm . The prepared sample shall not be less than 100 g. Divide into 3 bags. Each bag is not less than 30 g.

6.4.2 Randomly extract 10% samples from each batch for the internal quality inspection of cadmium zinc telluride polycrystalline. It shall not be less than 1 block (piece) for determination.

6.4.3 The appearance quality and physical specifications of cadmium zinc telluride polycrystalline are inspected block by block (piece).

6.5 Judgment of inspection results

6.5.1 The value of the inspection results shall be rounded off according to the provisions of GB/T 8170. The rounded value comparison method is used for judgment.

6.5.2 When the chemical composition of cadmium zinc telluride polycrystalline is unqualified, the batch of products shall be judged unqualified.

6.5.3 When the internal quality of cadmium zinc telluride polycrystalline is unqualified, the batch shall be judged unqualified.

6.5.4 When the physical specifications and appearance quality inspection of cadmium zinc telluride polycrystalline is unqualified, the block (piece) shall be judged as unqualified.

7 Marks, packaging, transportation, storage and accompanying documents

7.1 Marks

The words "handle with care" and "anti-corrosion and moisture-proof" or signs shall be marked on the outside of the packing box, and explain:

- a) Supplier name;
- b) Product name;
- c) Number and net weight of products shipped.

7.2 Packaging

Use polyethylene packaging for cadmium zinc telluride polycrystalline. Use vacuum heat sealing. Then put into the pearl cotton (expandable polyethylene) molding box. Finally put it in the packing box.

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