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**NATIONAL STANDARD OF THE
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**Additive manufacturing-Technical specification for reuse of
metal powder**

增材制造 金属粉末再利用技术规范

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting is required.

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document was proposed by the China Machinery Industry Federation.

This document is under the jurisdiction of the National Additive Manufacturing Standardization Technical Committee (SAC/TC 562).

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Technical Specifications for Recycling of Metal Powders for Additive Manufacturing

1 Scope

This document specifies the general requirements, strategies, testing requirements and process control requirements for the reuse of metal powders for additive manufacturing.

This document is applicable to the development and testing of metal powder reuse strategies for non-continuous, single-material powder bed fusion and directed energy deposition processes. Determination and process control are required, and the reuse of other process powders can be referred to in the same way.

2 Normative references

GB/T 35351

GB/T 39251-2020

3 Terms and definitions

The terms and definitions defined in GB/T 35351 and GB/T 39251 and the following apply to this document.

3.1 Recovered powder

Mixed powder recovered from the equipment feed area, forming area, overflow area and inside the part.

Note. If the powder recovered from the feeding area is stored separately as original powder, it is not considered as recovered powder.

3.2 Recycled powder

The powder obtained after sieving, drying, mixing or reprocessing the recovered powder according to regulations after recovery.

3.3 Reconditioning

A series of treatments are performed on the recycled powder to adjust the particle morphology, particle size distribution, surface chemical composition and residual moisture of the powder.

to meet applicable powder specifications.

Note. Usually includes magnetic separation, crushing, air flow classification and other processes.

3.4 Powder blending

The process of blending powders meeting the same powder specification so that the powder properties remain consistent throughout.

NOTE. The powders to be mixed can be recycled powders from one or more equipment, using the same raw material batch and having similar process history, or Different batches of raw materials meeting the same powder specification.

3.5 Powder recycling

The recovered powder is screened, dried, mixed or reprocessed to meet the applicable powder specifications for the next forming cycle.

period, and conduct a series of activities such as testing during use.

Note. The number of cycles for recycled powder after one forming cycle is 1.