ICS 71.120
CCS G 95

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 25431.1-2025

Replacing GB 25431.1-2010

Extruders and extrusion lines of rubber and plastics - Part 1: Safety requirements for extruders

橡胶塑料挤出机和挤出生产线 第1部分：挤出机的安全要求

Issued on: August 29, 2025 **Implemented on: August 1, 2026**

Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC

Table of Contents

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents". Drafting.

This document is Part 1 of GB/T 25431 "Rubber and Plastics Extruders and Extrusion Lines". GB/T 25431 has been published as follows. Part 2.

- Part 1: Safety Requirements for Extruders;

- Part 2: Safety Requirements for Die-face Pelletizers;

- Part 3: Safety requirements for traction devices.

This document replaces GB 25431.1-2010 "Rubber and Plastics Extruders and Extrusion Lines - Part 1: Safety Requirements for Extruders".

Compared with GB 25431.1-2010, the main technical changes in the "Requirements" standard, apart from structural adjustments and editorial modifications, are as follows.

- The scope of application of this document has been changed to include rubber and plastic screw extruders (see Chapter 1, 2010 edition). Chapter 1);

- The term "shear head assembly" and its definition have been removed (see 3.17 of the 2010 edition);

- The term "hopper" and its definition have been added (see 3.4);

- The term "extruder" has been changed to "(screw) extruder," and the definition has been revised (see 3.1, 2010 edition). The terminology has also been changed.

Definitions of "extruder", "main feed port", "auxiliary feed port", "barrel", "venting device", "pin", "static mixer" and "screen changing device" (See 3.8, 3.9, 3.10, 3.11, 3.12, 3.16 and 3.17, and 3.7, 3.8, 3.9, 3.10, 3.11, 3.15 and 3.16 of the 2010 edition);

- The term "single-roller feeder" has been changed to "single-roller feeder system," and the definition has been revised (see 3.5, 3.6 of the 2010 edition);

- The term "twin-roller feeder" has been changed to "twin-roller feeder system," and the definition has been revised (see 3.6, 3.5 of the 2010 edition);

- The term "accessory to the feed port on the extruder barrel" has been changed to "accessory at the opening of the extruder barrel," and the definition has been changed (see [link]).

3.13 (3.12 in the 2010 edition)

- The term "melt/gear pump" has been changed to "melt gear pump," and the definition has been revised (see 3.14, 3.13 of the 2010 edition);

- The term "melt connector" has been changed to "melt piping and melt connector," and the definition has been revised (see 3.15, 2010 edition). 3.14);

- The term "die head" has been changed to "extrusion die head," and the definition has been revised (see 3.18, 2010 edition of 3.18);

- Chapter 4, "Dangers and Dangerous Areas," has been deleted. Dangerous areas and major hazards are listed in Appendix A (see Appendix A, 2010 edition). Chapter 4);

- A "General Rule" has been added (see 4.1);

- The safety requirements for safety-related components of the control system have been changed, replacing "Category" with "Required Performance Level PLr" (see [link]). 4.2 (5.1 in the 2010 edition)

- The requirements for the fixed and interlocking protective devices used have been changed to "comply with the relevant clauses in GB/T 15706".

The phrase "specifies" has been changed to "complies with the provisions of GB/T 8196" (see 4.2, 5.1 of the 2010 edition).

- The requirements for "accessory openings for auxiliary components" and "vents" have been removed, and the requirement for "openings for mounting auxiliary components" has been added, and more...

The requirements for "exhaust devices" have been revised (see 4.2.3.3 and 4.2.10, and 5.1.3.3, 5.1.3.4 and 5.1.10 in the 2010 edition);

- The term "bucket feeding system" has been changed to "bucket," and the corresponding technical details have been modified (see 4.2.4.1, 5.1.4.1 in the 2010 version);

- The requirements for "stuffing feeding systems" have been changed (see 4.2.4.4, 5.1.4.4 in the 2010 version);

- The requirements for "overvoltage protection" have been changed (see 4.2.5, 5.1.5 in the 2010 version);

- The requirements for "network switching devices" have been changed (see 4.2.6, 5.1.6 in the 2010 version);

- The requirement for "shear head assembly" has been removed (see 5.1.11 in the 2010 version);

- The requirements for "extruder head" have been changed (see 4.2.11, 5.1.12 in the 2010 version);

- Changed "High-altitude work location" to "High-level work platform" and modified the corresponding technical details (see 4.8, 2010 version). 5.1.13);

- Change "power-controlled horizontal movement of the whole machine and its components" to "power-controlled horizontal movement of the whole machine and its components", and further...

The corresponding technical requirements have been revised (see 4.2.12, 5.1.14 in the 2010 version);

- Changed "Electrical Hazard" to "Electrical Hazard and Electromagnetic Interference Hazard" and modified the corresponding technical content (see 4.3, 2010). Version 5.2);

- The phrase "hot machine parts and thermoplastic materials" has been changed to

"thermal hazards," and the corresponding technical details have been revised (see 4.4, 2010 edition). (5.3)

- The requirements for "noise" have been changed (see 4.5, 5.4 in the 2010 edition);

- Change "materials and substances that are machined, used, or discharged" to "materials and substances that are processed, used, or discharged", and change the following.

The relevant technical details are shown in section 4.6, section 5.5 of the 2010 edition.

- The terms "fire" and "temperature control of the heating zone" have been merged and changed to "fire hazard," and the corresponding technical details have been modified (see 4.7, 2010).

(5.6 and 5.7 of the 2016 edition);

- The requirement of "ergonomics" has been added (see 4.9);

- The term "emergency stop device" was changed to "emergency stop," and the corresponding technical details were modified (see 4.10, 5.8 of the 2010 version);

- The phrase "mechanical control system" has been removed (see section 5.9 of the 2010 edition);

- Change "Conformity verification of safety requirements and measures" to "Conformity verification of safety requirements and/or protection/risk reduction measures" (See Chapter 5, Chapter 6 in the 2010 edition);

- Changed "minimum markings required on the machine" to "markings and signs," and modified the corresponding technical content (see 6.1, 2010). Version 7.1);

- Added content on keeping the machine clean and ergonomics to the instruction manual [see 6.2m) and 6.2n];

- Appendix A, which provides a comparison of relevant standards cited, has been deleted (see Appendix A in the 2010 edition).

- Appendix B, "Noise Testing Procedures," has been added (see Appendix B).

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China Petroleum and Chemical Industry Federation.

This document is under the jurisdiction of the National Technical Committee on Standardization of Rubber and Plastics Machinery (SAC/TC71).

This document was drafted by: National Plastics Machinery Product Quality Supervision and Inspection Center, Guilin Rubber Design Institute Co., Ltd., and Dalian Rubber & Plastics.