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

GB 6479-2013

**[GB/T 6479-2013] Seamless steel tubes for high-pressure
chemical fertilizer equipment
(English Translation)**

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Foreword

In this Standard, 4.4, 4.6, 5.1, 5.2, 5.3, 5.4.1, 5.4.2, 5.4.4, 5.4.5, 5.5, 5.6.1, 5.7, 5.8.1, 5.9, 5.10.1, clauses 6~8 are mandatory; the rest are recommendatory.

This Standard is drafted according to the requirements of GB/T 1.1-2009.

This Standard replaces GB 6479-2000 Seamless Steel Tubes for High-Pressure Chemical Fertilizer Equipments. Compared with GB 6479-2000, besides editorial changes, this Standard has the main technical changes as follows.

- Normative references are adjusted and added;
- Order contents are added;
- Allowable deviation of outer-diameter and wall-thickness of steel tube is modified;
- Allowable length deviation is modified;
- The requirement of flexibility along the full length is added;
- The requirements of out-of-roundness and wall unevenness are added;
- Designation and chemical composition are modified;
- Manufacturing methods are modified;
- Mechanical properties are modified;

- The requirements of flattening test are modified;
- Nonmetallic inclusion test requirements are modified;
- Non-destructive inspection requirements are modified.

This Standard was proposed by China Iron and Steel Association.

This Standard shall be under the jurisdiction of the National Technical Committee on Iron and Steel of Standardization Administration of China (SAC/TC 183).

Drafting organizations of this Standard. Angang Steel Company Limited, Ansteel Chengdu Steel-Vanadium Co., Ltd., Hunan Hualing steel pipe Holding Co., Ltd., Zhejiang University of Technology Chemical Equipment Co., Ltd., Hengyang Valin Steel Tube Co. Ltd. AND Jiangsu Valin-Xigang Special Steel Co., Ltd.

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The previous editions replaced by this Standard are as follows.

- GB6479-1986 and GB6479-2000.

Seamless Steel Tubes for High-Pressure Chemical
Fertilizer Equipments

1 Scope

This Standard specifies seamless steel tubes for high-pressure for chemical fertilizer equipment in terms of dimension, shape, weight, technical requirements, test methods, inspection rules, packaging, marking and quality certificate, etc.

This Standard is applicable to seamless steel tube for high-pressure chemical fertilizers equipment and pipeline or the ones for other chemical equipment.

2 Normative References

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

GB/T 222 Permissible Tolerances for Chemical Composition of Steel
Products

GB/T 223.3 Methods for Chemical Analysis of Iron, Steel and Alloy - The
Diantipyrylmethane Phosphomolybdate Gravimetric Method for
the Determination of Phosphorus Content

GB/T 223.5 Steel and Iron - Determination of Acid-soluble Silicon and Total
Silicon Content - Reduced Molybdosilicate Spectrophotometric
Method

GB/T 223.11 Iron Steel and Alloy - Determination of Chromium Content - Visual
Titration or Potentiometric Titration Method

GB/T 223.12 Methods for Chemical Analysis of Iron, Steel and Alloy - The
Sodium Carbonate Separation-Diphenyl Carbazide Photometric
Method for the Determination of Chromium Content

3 Order

For the purpose of this Standard, the order contract or order form shall include the
following information.

4.1.1 The nominal outer-diameter (D) and nominal wall-thickness (S) of steel tubes

shall meet those specified in GB/T 17395.

4.2.1 Allowable deviation of outer-diameter and wall-thickness of hot rolled
(squeezed and extended) steel tubes shall be in accordance with those specified in
Table 1.

4.2.2 Allowable deviation of outer-diameter and wall-thickness of cold-drawn (rolled)

steel tube shall meet those specified in Table 2.

4.3.1 General length

General length of steel tubes is 4000mm ~12000 mm. Based on the agreement of
both Seller and Buyer, the steel tubes longer than 12000mm and the ones with length
between 3000mm and 4000mm may be delivered if indicated in the contract; the

quantity shall not exceed 5% of the total quantity delivered at this batch.

4.5 Out-of-roundness and wall unevenness

As required by the Buyer, based on the agreement of both Seller and Buyer and also indicated in the contract, the out-of-roundness and wall unevenness of steel tubes shall not exceed 80% of the tolerance of outer-diameter and wall-thickness respectively.

4.6 End shape

The surface of both ends of steel tube shall be vertical to the axis and the cutting burrs shall be cleared away.

5.1.1 Designation and chemical composition (melting analysis) of steel shall be in

accordance with those specified in Table 4. The steel tubes are accepted based on the smelting composition.

5.1.3 If the steel is smelted in oxygen converter, the nitrogen content shall not be greater than 0.008 % except 12Cr5Mo.

5.1.4 Carbon equivalent (CEV) of Q345B, Q345C, Q345D and Q345E shall not be greater than 0.45 %. The carbon equivalent shall be analyzed for its composition by melting and calculated by Equation (1).

$$CEV = C + Mn/6 + (Cr + Mo + V)/5 + (Ni + Cu)/15 \dots (1)$$

5.2.1 Manufacturing method of steel

The steel shall be treated by electric arc furnace and external refining with vacuum refining or oxygen converter and external refining with vacuum refining or smelted by electroslag remelting process.

5.2.2 Manufacturing method of tube blank

The tube blank may be manufactured by continuous casting, die casting or heat rolling (forging).