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# NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

ICS 77.150.10 H 61

GB/T 33881-2017

# **Aluminium Alloy Plates, Sheets and Strips for Tank Truck**

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Issued on: July 12, 2017 Implemented on: February 1, 2018

Issued by: General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China;
Standardization Administration of the People's Republic of China.

# **Table of Contents**

Fc	Foreword	
1	Application Scope	4
2	Normative References	4
3	Requirements	5
4	Test Methods	9
5	Inspection Rules	9
6	Marking, Packaging, Transportation, Storage and Quality Certification	
7	Order (or Contract) Content	.12

## **Foreword**

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This Standard was proposed by China Nonferrous Metals Industry Association.

This Standard shall be under the jurisdiction of the National Standardization Technical Committee on Nonferrous Metals (SAC/TC 243).

The drafting organizations of This Standard: Southwest Aluminium Industry (Group) Co., Ltd., China Nonferrous Metals Techno-economic Research Institute, National Nonferrous Metals Quality Supervision and Inspection Centre, Guangdong Industry Analysis Testing Centre, Suzhou Institute for Nonferrous Metals Research Co., Ltd., Shandong Nanshan Aluminium Co., Ltd., Northeast Light Alloy Co., Ltd., Guangxi Liuzhou Yinhai Aluminium Co., Ltd., CHALCO Ruimin Co., Ltd., China Zhongwang Holdings Co., Ltd.

The main drafters of This Standard: Dai Chenxu, Du Hengan, Chen Dingqiang, Xi Huan, Li Pu, Yang Peng, Pan Yanfeng, Song Xiaolin, Xie Yancui, Wang Dawei, Wen Jianping, Wu Jianxin, Wang Guoping.

# Aluminium Alloy Plates, Sheets and Strips for Tank Truck

# 1 Application Scope

This Standard specifies the requirements, test methods, inspection rules, marking, packaging, transportation, storage, quality certification and order (contract) content of aluminium plates, sheets and strips for tank truck.

This Standard applies to aluminium plates, sheets and strips for tank truck for road transportation.

## 2 Normative References

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

GB/T 232, Metallic Materials – Bend Test

GB/T 3190, Wrought Aluminium and Aluminium Alloy – Chemical Composition

GB/T 3199, Wrought Aluminium and Aluminium Alloy Products – Packing, Marking, Transporting and Storing

GB/T 3880.1-2012, Wrought Aluminium and Aluminium Alloy Plates, Sheets and Strips for General Engineering – Part 1: Technical Conditions of Delivery

GB/T 3880.3-2012, Wrought Aluminium and Aluminium Alloy Plates, Sheets and Strips for General Engineering – Part 3: Tolerances on Forms and Dimensions

GB/T 7999, Optical Emission Spectrometric Analysis Method of Aluminium and Aluminium Alloys

GB/T 8170, Rules of Rounding off for Numerical Values and Expression and Judgement of Limiting Values

GB/T 16865, Test Pieces and Method for Tensile Test for Wrought Aluminium and Magnesium Alloys Products

GB/T 17432, Methods of Sampling for Analyzing the Chemical Composition of Wrought Aluminium and Aluminium Alloy

GB/T 20975 (all parts), *Methods for Chemical Analysis of Aluminium and Aluminium Alloys* 

## 4 Test Methods

#### 4.1 Chemical composition

- **4.1.1** The analytical method for chemical composition shall be as specified in GB/T 20975 or GB/T 7999; and the arbitration analysis shall be conducted in accordance with the method specified in GB/T 20975.
- **4.1.2** For the designations of 5059, 5088, 5186 and 5383, the routine chemical analysis is only conducted for the values of the elements specified outside the columns "Al" and "other impurities" in Table 2.
- **4.1.3** The mass fractions of "Al" are calculated in accordance with the method specified in GB/T 3190; when the mass fractions of "Al" is calculated, take the sum of the analytical values of the routine analytical elements and the suspicious excessive non-routine analytical elements as the "total of the mass fractions of elements".
- **4.1.4** The method of comparing the values rounded off shall be used for the judgement of the analytical values; the rules for the rounding off of values shall be as specified in GB/T 8170; the decimal places rounded off shall be as specified in Table 2 or consistent with the limit places specified in GB/T 3190.

#### 4.2 Dimensional tolerances

The measuring method for the dimensional tolerances shall be as specified in GB/T 3880.3-2012.

#### 4.3 Room-temperature tensile mechanical properties

The method for the test of tensile mechanical properties at room temperature shall be as specified in GB/T 16865.

### 4.4 Bending properties

The method for the test of bending properties shall be as specified in GB/T 232.

#### 4.5 Appearance quality

Conduct visual inspection for the appearance quality. If necessary, the dimensional measurement tools may be used to define the size of defects and the depth of defects may be measured by repair grinding.

# 5 Inspection Rules

#### 5.1 Inspection and acceptance

**5.1.1** Products shall be inspected by the supplier to ensure the quality is as specified

	than one roll; and take two samples for each roll. Take 2% of the sheet		
	number for each batch of plates and sheets, but not less than two sheets;		
	take one sample by cutting from each sheet sampled.		
Appearance quality	Conduct inspection on each sheet (or roll)	3.6	4.5

#### 5.6 Judgement of inspection results

- **5.6.1** When the chemical composition of any sample is unacceptable and the smelting batch can be differentiated, then the smelting batch represented by the sample is unacceptable; and the other smelting batches are subjected to inspection in sequence, which will be delivered if they pass the inspection. When smelting batches are unable to be differentiated, then the lot is judged to be unacceptable.
- **5.6.2** When the dimensional tolerances of any sample are unacceptable, then the batch is judged to be unacceptable. But inspection on each sheet for plates and sheets is allowed, and those passing the inspection are delivered.
- **5.6.3** When the room-temperature tensile properties of any sample are unacceptable, then take separately a double number of samples from the batch (or furnace) to repeat the test. If all the results of the repeated test are acceptable, then the batch (or furnace) of products are acceptable. If there is any result of the repeated test still unacceptable, then the batch (or furnace) of products are judged to be unacceptable. When the inspection by the supplier on each sheet (or roll) is allowed as agreed on by the supplier and the purchaser, those passing the inspection are delivered.
- **5.6.4** When the bending properties of any sample are unacceptable,
- **5.6.5** When the appearance quality is unacceptable, then the sheet (or roll) is judged to be unacceptable, take separately a double number of samples from the batch (or furnace) of products to repeat the test. If all the results of the repeated test are acceptable, then the batch (or furnace) of products are acceptable. If there is any result of the repeated test still unacceptable, then the batch (or furnace) of products are judged to be unacceptable. When the inspection by the supplier on each sheet (or roll) is allowed as agreed on by the supplier and the purchaser, those passing the inspection are delivered.

# 6 Marking, Packaging, Transportation, Storage and Quality Certification

### 6.1 Marking

#### **6.1.1** Product marking

The following marks shall be printed (or labeled) on three sheets each from the lower part and upper part of the pile of plates and sheets which have been approved by

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