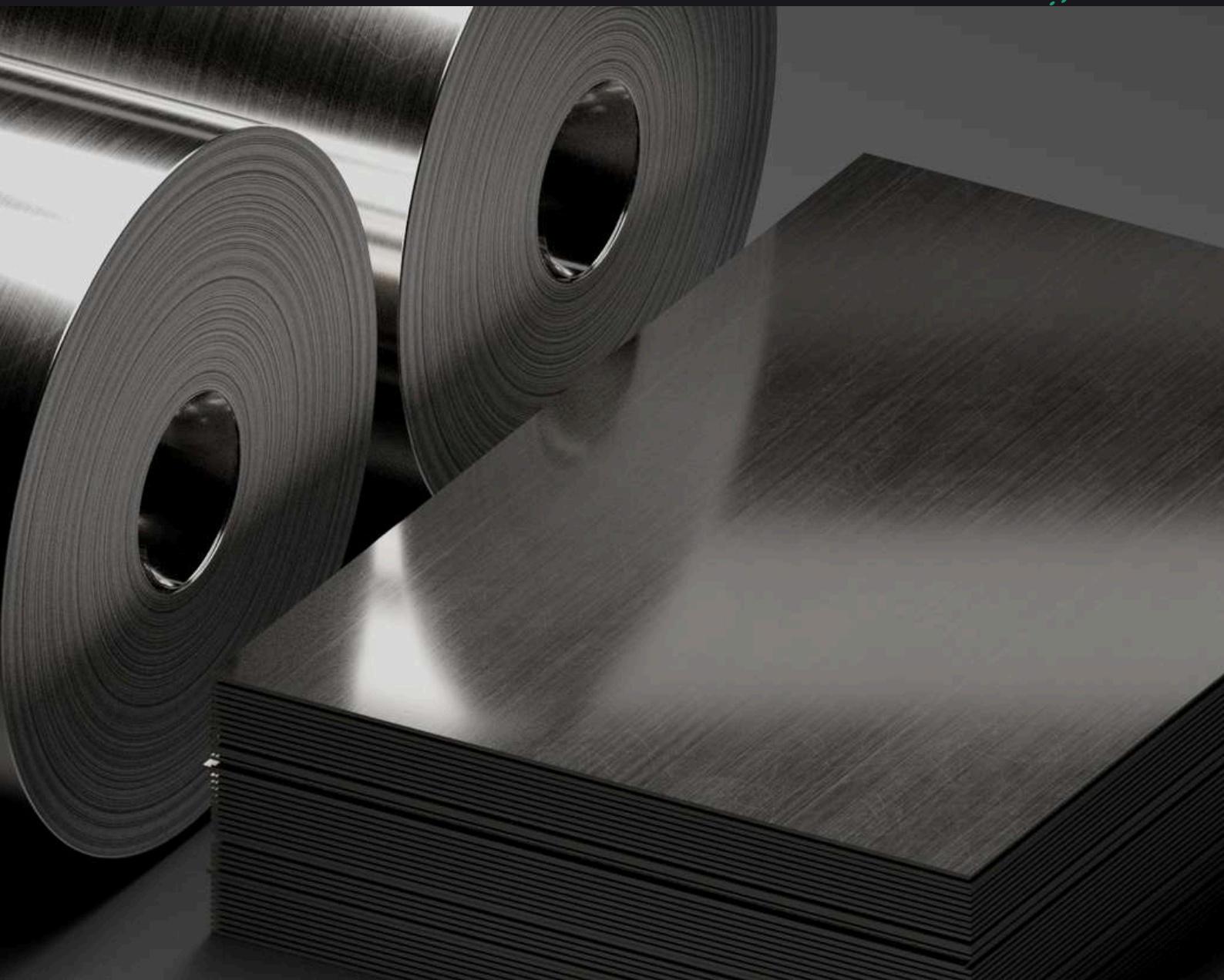
STEELFORCE
PACKAGING

TECHNICAL DATASHEET
Aluminum



Aluminum (Al)

Comprehensive Technical Overview

Aluminum is a lightweight, durable, and fully recyclable material. It provides excellent protection against light, oxygen, and moisture, preserving the freshness and flavor of the contents. Its corrosion resistance and strength make it suitable for the manufacturing of cans and components of beverage and food packaging.

1. Uses

Aluminum can be used according to its technical specification, specifically its alloy: The 3000 alloy series, characterized by its high ductility, is primarily used in the manufacturing of beverage can bodies, food containers, and aerosols, enabling deep drawing and complex forming processes. Meanwhile, the 5000 alloy series, with higher mechanical strength, is employed in lids and container bottoms, hermetic sealing systems, valves, and structural components requiring greater rigidity and corrosion resistance, especially in packaging designed for demanding conditions such as canned goods, chemical products, and industrial applications.

2. Technical especifications

The main specifications for aluminum are those related to 3000 and 5000 alloy series. The technical specifications of each one is shown below:

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info@steelforcepackaging.com
www.steelforcepackaging.com

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	SERIES 3000	SERIES 5000
Alloy designation	3004-H19 3104-H19	5182 – H19 5182 – H481
Tensile strength, MPa	285 – 320	370 – 431
Yield Strength, MPa	260 – 295	329 – 392
Elongation, min %	2,0	5,0
Earing, max %	4,0	
Roughness Ra, max µm	0,20	0,50
Postlube, mg/m2/side	150	300

Those are general specifications, however, each case should be evaluated

Chemical composition:

According to international standards, the following is the chemical composition recommended for each alloy.

	Chemical composition %					
Alloy	Si	**Fe**	**Cu**	**Mn**	**Mg**	**Zn**
3004	0,30	**0,70**	**0,25**	**1,0 – 1,5**	**0,8 – 1,3**	**0,25**
3104	0,60	**0,80**	0,05 – 0,25	0,8 – 1,4	0,8 – 1,3	0,25
5182	0,20	0,35	0,15	0,20 – 0,50	4,0 – 5,0	0,25

3. Dimensions

Dimensions for this material are according to each customer end use. In the following table some standard values are presented, however, each case should be evaluated.

Coils			
Dimension	**Units**	**min**	**max**
Thickness	mm	0,18	0,28
Width	mm	1680	1800
Coil weight	kg	6.000	18.000
Flatness	mm	-	6
Edge camber	mm	-	1

4. Recommendations and product hadling

For maximum usage of the raw material, the following recommendations should be followed:

- The material should be stored in a humidity-free environment to prevent and risk of oxidation.
- To prevent oxidation it is necessary to take care when transporting, storing and handling.
- Demand appropriate transportation, with vehicles that have floors and roofs in good condition
- Never leave the material outdoors
- Store the material in closed warehouses with low relative humidity. In coastal areas or lots of rainfall, it is advisable to use equipment to reduce relative humidity to acceptable levels.
- Do not store material without appropriate packaging
- Use material immediately after opening it.
- Material storage should be as follows:
  - In general the lots with greater area or quantity should be located in the stack's lower side
  - Stack height should be necessary enough to keep visual control to avoid injuries. Moreover, the stability due the base/height and floor capacity resistant should be considered.

Contact ud for technical inquiries

For more detailed technical information or to discuss your specific requirements, reach out to our expert team. Let us help you select the optimal specifications for your project.

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