

# Zinkal5 and Zinkal10



**ZINKAL 5 AND ZINKAL 10**, two Zinc – Aluminium master alloys with respectively 5 or 10%Al, have been specially developed to meet the needs of our customers in the general galvanizing industry.

ZINKAL-master alloys are mainly used for rapid increases in the Aluminium levels without interfering with the coating process or the fundamental bath contents. Furthermore, the standard Aluminium concentrations in a hot dip galvanising bath can be successfully adjusted by the use of Master Alloys, to accommodate important variations needed by different processes. The approx. 7 kg waffles we produce can easily be broken into smaller pieces enabling a perfect dosage according to your needs.

A further advantage of ZINKAL5 is that this alloy solidifies in a eutectic micro-

structure and has a melting temperature of only 382 °C. It dissolves very fast and homogeneously in your galvanizing bath.

#### OUR PROMISE

Boliden's experienced technical support drives the development and production process of the alloy and our Technical Consultant is ready to answer your questions with regards to your individual application of the product.

Through reliable deliveries, high quality products and professional customer service, including price information and technical support we want to be your supplier of choice.

By becoming Boliden's customer, we want to help you add value to your customers and work with you for a more sustainable future.

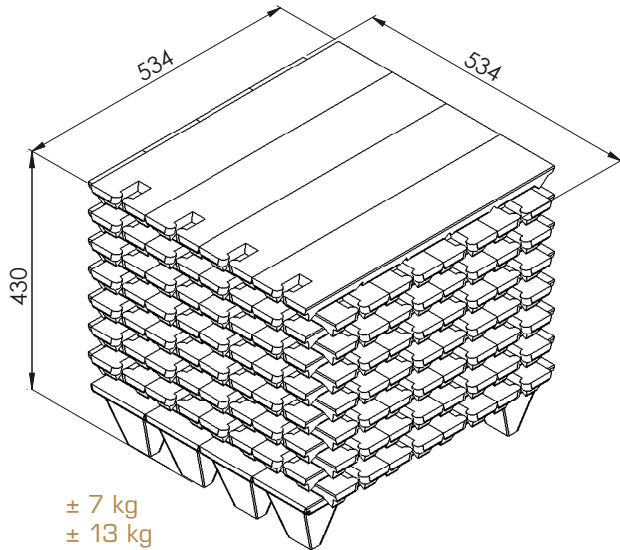


Standards: European ISO 1461

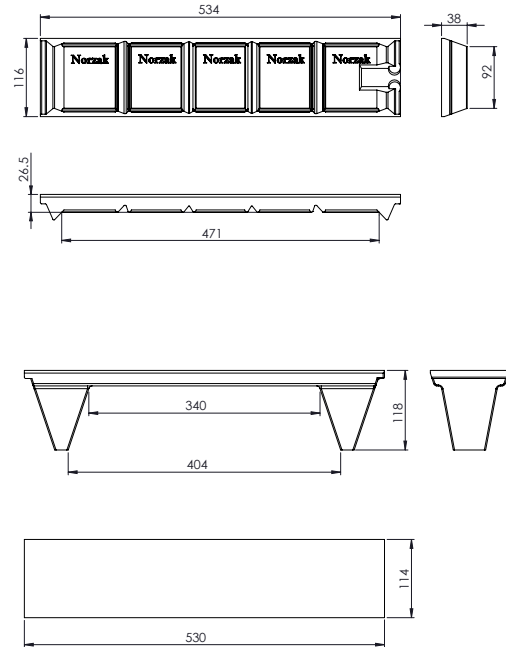
## Did you know that ...

Boliden's strength in alloys comes from innovation driven by the tight environmental legislation in Scandinavia for metal production.

# Technical Specification



Slab ± 7 kg  
 Feey ± 13 kg  
 Slab bundle 440 ± 20 kg



Chemical composition	ZINKAL 5	ZINKAL 10
Al	4.7 – 5.3 %	9.0 – 11.0 %
Cu	< 0.03 %	< 0.03 %
Mg	< 0.02 %	< 0.03 %
Fe	< 0.02 %	< 0.03 %
Pb	< 0.01 %	< 0.03 %
Cd	< 0.003 %	< 0.003 %
Sn	< 0.001 %	< 0.001 %

Physical property	Unit	ZINKAL 5	ZINKAL 10
Density solid	g/cm <sup>3</sup>	6.6	6.1
Density liquid	g/cm <sup>3</sup>	6.1	5.7
Liquidus temperature	°C	385	422
Solidus temperature	°C	382	382
Viscosity at liquidus	Ns/m <sup>2</sup>	0.0033	0.0026
Viscosity at 460 °C	Ns/m <sup>3</sup>	0.0027	0.0023

## The Boliden Group

Metals are an ever-present and vital component of society. Boliden extracts minerals and produces high quality metals in a cost-efficient way. The work – from exploration to customer delivery – is characterised by care for people, the environment and society.

The Boliden Group operates six mines and five smelters in Sweden, Finland, Norway and Ireland and has a total of approximately 5,700 employees. Our core expertise is in exploration, mining, smelting and recycling.

Boliden's main metals are zinc and copper, but the production of lead, nickel, gold, silver and other products is also of considerable importance for our profitability. The annual turnover is approximately SEK 50 billion.



## Our value chain

**Exploration** Successful exploration is vital to long-term metal production. The exploration is conducted in the vicinity of existing mines and in new areas in order to find new deposits.

**Mines** Zinc-, copper-, nickel-, lead-, gold- and silver-bearing ores are mined in Boliden's mining areas. The ore is processed to metal concentrate, the majority of which is delivered to smelters within the Group.

**Smelters** Boliden's smelters refine metal concentrates and other raw materials, such as electronic scrap, to produce both pure metals and customised alloys.

**Customers** Our products are mainly sold to industrial customers in Europe. Most of the zinc is sold to steel companies, while the copper is supplied to manufacturers of for example wire rod.