Information *Information*

Trade name: RHEINZINK-prePATINA® bright-rolled

Chemical composition	
Zinc	Zn 99.995 % (Z1 as per DIN EN 1179)
Copper	Cu: 0.1 - 0.18 %
Titanium	Ti: 0.07 - 0.12 %
Aluminium	Al: max. 0.015 %

Surface	
Top face	
- Surface treatment	biologically degradable rolling emulsion (biodegradable)
- Coating thickness	-
- Function	-
- Patination	patination after installation
- Hue (as reference)	-
Bottom face	
- Surface treatment	biologically degradable rolling emulsion (biodegradable)
- Coating thickness	-
- Function	-

Mechanical-technical properties	
0.2% proof stress (Rp0.2)	min. 110 N/mm²
Tensile strength (Rm)	min. 150 N/mm²
Breaking elongation (A50)	min. 40 %
Vickers hardness (HV3)	min. 45
Folding test	no cracks at edge of fold
Bending back after folding test	no crack when bending back
Fold tensile force test	D min. 0.7 1)
Erichsen cupping	min. 8.0 mm
Permanent elongation in creep (Rp0.1)	max. 0.1%
Longitudinal curvature	max. 1.0 mm/m
Flatness	max. 1.5 mm wave height

Physical and chemical properties	
Melting point / Melting range	418 °C
Boiling point / Boiling range	906 °C
Recrystallisation limit	> 300 °C
Density at 20 °C	7.2 g/cm³
Elasticity modulus	≥ 80.000 N/mm²
Lateral expansion coefficient	$22 \cdot 10^{-6}$ K^{-1}
Horizontal expansion coefficient	$17 \cdot 10^{-6}$ K^{-1}
Thickness expansion coefficient	$49.5 \cdot 10^{-6}$ K^{-1}
Thermal conductivity	109 W/m·K
Specific heat capacity	398 J/kg/K
Electrical conductivity	17 m/Ω·mm²
Viscosity	dynamisch bei 500 °C: 0.0030 mPa·s

Certification	
Quality management	certified according to ISO 9001
Environmental management	certified according to ISO 14001
Energy management	certified according to ISO 50001
Environment	environmental product declaration as per ISO 14025, Type III and EN 15804
Monitoring	external monitoring - 4x/year, sampling at plant[2)]

1) Bending by 180°, then bending back top end of sample by 90°, followed by a tensile test;
D = (tensile strength of folding sample)/(tensile strength of material)

2) Testing of mechanical-technical properties and chemical composition. Neutral sampling by TÜV Rheinland Group

Identification
RHEINZINK-prePATINA® – EN 988 Titanzink/Titanium Zinc/Zinc titane – RHEINZINK® – Datteln – MADE IN GERMANY – TÜV QUALITY ZINC – Rückseite/back side/verso – RHEINZINK-prePATINA® – 123456/78 0,70

Types of sheets – RHEINZINK-prePATINA® bright-rolled / item number 01…..	
Application	manual sheet metal work for buildings/façade systems
Max. width	1000 mm
Standard thicknesses / Standard lengths	acc. to RHEINZINK delivery programme for semi-finished products
Packaging	supplied on deposit-refund pallets
Protective foil	available
Round hole perforated sheet	
prePATINA® bright-rolled	hole diameter: 5.00 mm (offset), web width 2.00 mm*
Ventilation cross-section	free cross-section A0: 46%
Max. width	1000 mm
Standard thicknesses	1.00 mm
Standard lengths	2000 mm
Weight per sheet	approx. 3.89 kg/m² = approx. 7.78 kg/sheet
Packaging	supplied on deposit-refund pallets
Diamond mesh sheet - prePATINA® bright-rolled	
Ventilation cross-section	free cross-section A0: 63%
Max. width	1000 mm
Standard thicknesses	1.00 mm
Standard lengths	2000 mm
Weight per sheet	ca. 2.65 kg/m² = approx. 5.3 kg/sheet
Packaging	supplied on deposit-refund pallets

Types of coils – RHEINZINK®-prePATINA® bright-rolled / item number 01…..	
Application	roof and facade
Max. width	1000 mm
Standard thicknesses / Standard coil weight	acc. to RHEINZINK delivery programme for semi-finished products
Inner diameter of coil	coil weight > 500 kg - 508 mm*
	coil weight < 500 kg - 400 mm*
Packaging	supplied on deposit-refund pallets
	available with paperboard sleeve on request
Protective foil	available

*** Other measurements available on request**

Measurement tolerances for standard dimensions	
Sheet and coil thickness	± 0.020 mm
Sheet and coil width	+ 2/-0 mm
Sheet length	+ 2/-0 mm

Processing	
Storage	dry and ventilated
Transport	only in closed vehicles
Marking	soft pencil or pen
Forming / Folding	bending radius 1.75 mm (normally 2 mm) and 1.75 x t
Processing temperature	heat if temperature of metal < 10 °C
Soft soldering	overlap of material ≥ 10 mm ≤ 15 mm joint clearance ≤ 0.5 mm brazing solder (L-Pb Sn 40 (Sb), low in antimony) soldering fluid Felder "ZD-pro", Chemet "Z-04-S" working temperature approx. 250 °C soldering iron (shaped copper bit) > 350 g
Adhesive bonding	Bitumen cold-bonding compound e.g. Enkolit®, applied over entire surface with a grooved spreader, provide joint plate or UDS connector at sheet joints. PU adhesive, e.g. RHEINZINK gutter adhesive, Weikon 302, SikaBond
Protective foil	The foliation is a self-adhesive protective plastic film that is applied at the factory and is exposed during installation to UV radiation and temperature variations. If this exposure continues for a long time, the properties of the film may change and cause adhesive residues on the metal surface. To avoid these changes, we recommend removing the film immediately after the installation process.

Application areas	
Standing seam technique	double standing seam, angled standing seam, double angled standing seam, Click roll cap system
Edging profiles	termination profiles, service folds
Roof drainage	gutter, pipe, accessories
Profile systems	not available
Tile systems	diamond tiles, square tiles, flat-lock tiles
Panel systems	not available
Roof systems	not available

Risk of corrosion / Resistance	
Oxidising acid	Roof coverings with unprotected bitumen or certain plastics may cause corrosive effects through the runoff of acid (low pH value). Precautionary measure: coat with non-porous paint over entire surface, e.g. ENKE Multi Protect.
Mortar / Lime dust	Avoid contact with wet mortar (high alkaline pH values) Precautionary measure: coat over entire surface.
Hot water corrosion	Avoid stagnant water collecting under sheeting. Please follow design recommendations, e.g. minimum roof pitch, jointing techniques, etc., use appropriate structured underlay, allow for thermal expansion of material.
Perspiration	The surface treatment offers protection from normal influences such as fingerprints, although permanent marking of surface by perspiration may occur with heavy or lengthy exposure. Recommendation: Wear gloves when handling and processing material.

Foliage	The surface treatment offers protection from normal influences such as foliage although marking of surface by tannic acid may occur with heavy or lengthy exposure to foliage.
Wood preservative	No harmful effects with standard salt- or oil-based products. Surface discolouration may be seen but does not shorten the service life.
Wood	Substances contained in wood such as tannic acid, resins or stains may cause surface discolouration but this does not shorten the service life.
Metals	Do not install copper over zinc (discolouration possible). Can be combined with aluminium, stainless steel, galvanized steel and lead.
Slate	No known harmful effects.
Marine climate	When using the natural RHEINZINK-PATINA LINE surfaces in areas subject to a marine climate, white deposits may develop on the surface due to the salt in the atmosphere. These natural deposits integrate into the natural patina and because of the colour contrast, are more visible on the darker, RHEINZINK-prePATINA graphite-grey surface. This will not affect the function or expected service life of the material when used on facades, roofs or other cladded building components. The natural patina will appear lighter when used in locations where the air contains chlorides. When used in environments where sulphur levels are higher, (e.g. industrial pollution), the patina may appear somewhat darker than usual.
Exhaust fumes (fuel oil/gas)	Oil-fired heating systems may cause marking of surface by combustion residues (sulphur/ /ferrous additives). No harmful effects generally seen with gas-fired systems.
Bird droppings	Permanent marking will occur.
Clinker / chemical cleaning agents	Strong corrosive effect caused by low pH-values.
Uric acid	Permanent marking of surface will occur (white discolouration).

Note:

In case of contaminations on the material surfaces caused by external or environmental influences please refer to the RHEINZINK cleaning recommendations.

In accordance with this recommendation, RHEINZINK cannot guarantee that the visual appearance will be as good as new.