

Resources

Worldwide **1.9 Billion t**



Zinc is not a critical raw material. Zinc resources are sufficient for **> 700 Years**
At the same time, the quantity of recycled zinc is continuously increasing.



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Life Cycle



- eco-friendly
- durable
- low-maintenance

> 50 Years

In architecture, zinc is a material with a future.
Roofs and facades made of zinc last longer than 50 years.

Rainwater



Zinc is also absolutely safe in architecture.
Infiltration of rainwater from zinc roofs is harmless.

Recycling



Zinc can be recycled almost without loss of quality and is thus continuously returned to the materials cycle.

Energy

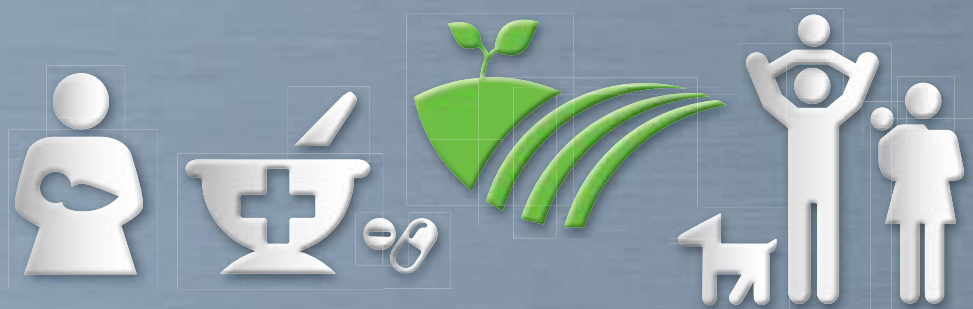


Zinc preserves resources during production. Only a small amount of energy is required for recycled materials.

Health

Zinc

... is a vital trace element
... is a food supplement
... is a component of sun protection creams
... is used as a fertilizer

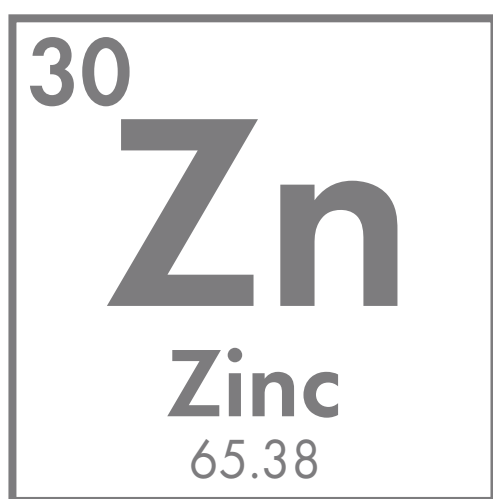


ZINC IS AN HONEST SKIN ...

Often a wrong or incomplete picture of zinc prevails in many minds. The chemical element with the symbol “Zn” and the order number “30” is anything but poisonous. Everyone needs 10 to 15 milligrams of zinc per day to stay healthy and also for animals and plants, zinc is vital.

In its metallic form, zinc is a valuable material which is also, for example, very successfully used in architecture. And almost 100% can be recycled without any loss of quality.

Incidentally: Zinc is classified as heavy metal because its density is more than 5 kg/dm³ – it is thus in good company with iron, silver, gold and platinum. The weight class does not allow conclusions to be drawn about the effects on health and the environment.



IMPORTANT FOR LIFE



ZINC IS AN ESSENTIAL TRACE ELEMENT

After iron, zinc is the second most important trace element for humans. It protects the health and is involved decisively in nearly all metabolic processes. Since it cannot be stored in the body, it must be absorbed regularly. Zinc strengthens the immune system - and is therefore also found again in food supplements and fluids. Stress sensitivity, hair loss, lack of performance or an unfulfilled wish for children can be a sign of zinc deficiency.

ZINC PREVENTS DEATH IN INFANCY

Zinc is also extremely important for the growth and mental development of children. Child mortality due to diarrhoea-related diseases and pulmonary infections can be reduced by nearly 20% in developing countries by the provision of zinc to children between 1 and 4 years old (Source: 9)

ZINC IS USED TO PROTECT WOUNDS AND SKIN

Zinc assists in wound healing and is therefore used as an active ingredient in wound and healing ointments. In the form of zinc oxide in sunscreen creams, it protects the skin against UV radiation

ZINC IS USED AS A FERTILIZER

Not only humans and animals, but also plants need zinc to develop well. For this reason, fertilizers with zinc additives are used in areas with low-zinc soil. (Source: 8)



WITHOUT CONFLICT

ZINC IS NOT A SUPPLY-CRITICAL RAW MATERIAL

The known (technical) zinc reserves have had for decades a theoretical extent of approx. 20 years. There are, however, significantly more resources – which based on current consumption and unchanged recycling behaviour - have an extent of 150 years (Source: 1). This is also the reason that zinc has not been classified as a “supply-critical raw material” by the EU in the sense of resource availability. Although the economic importance of zinc is regarded as high, whereas the risk to supply is only regarded as very low (Source: 2). An assessment which also goes along with a study by the German Raw Material Agency (2014) owing to the low geopolitical risk (Source: 3).

ZINC IS NOT A RAW MATERIAL INVOLVED IN CONFLICTS

The metals tin, gold, tungsten and tantalum are classified as “raw materials involved in conflicts” (Source: 4) because their production in the Congo and its neighbouring countries contributes to the financing of civil wars. Zinc is not a “raw material involved in conflicts”. It is mined in many countries of the world.

ZINC IS PRODUCED IN A RESOURCE-EFFICIENT MANNER

Construction zinc has an excellent ecological balance compared to other construction metals and construction materials - the melting point is low, therefore comparatively little energy is used. Emissions are also low. In a life cycle analysis commissioned by the German Environmental Protection Agency (UBA), zinc performs very well in all active categories considered (Source: 5). The good recyclability also contributes significantly to the exemplary ecological balance

ZINC CONTAINS NO SUBSTANCES OF CONCERN

The European Chemicals Regulation, REACH ensures a high level of protection for people and the environment. It regulates, for example, the handling of substances from which a particular hazard potential arises. If in a product, more than 0.1% of a substance of concern, i.e. of a so-called SVHC substance (“substances of very high concern”) is found, the customers have to be informed about this.

Solid zinc contains no critical SVHC substances and is neither classified as dangerous to the environment or nor according to any other hazard characteristics. It contains no radioactive isotopes and does not produce radiation. Completely the contrary: It safely shields from electromagnetic radiation.



HARMLESS

SUSTAINABLE

... RHEINZINK AS WELL

ZINC IS NOT A PRIORITARY SUBSTANCE IN THE WATER FRAMEWORK DIRECTIVE

The European Water Framework Directive applies to the regulation of substances considered hazardous to stretches of water. The list of "priority substances" lists the substances whose entry into the water should in principle be limited or completely discontinued. Zinc is not on this list because no risk from zinc pollution is envisaged in European waters.

ZINC HAS A NATURAL MATERIAL SURFACE

Zinc is a natural material in its form as construction zinc, which reacts with the atmosphere and forms a protective layer (patina). Small amounts of zinc ions are washed off with the precipitation water. The concentration of zinc, however, is still below the concentration specified in the German Drinking Water Regulation of 1990 as a guideline value (not limit value!). Zinc no longer appears in the new version of the Drinking Water Regulation of 2001. The German Association for Rainwater Harvesting and Water Utilisation (FBR) has no reservations about the use of the corresponding water for the usual domestic uses (Source: 7).

Precipitation water, which has been in contact with zinc, is pH-neutral; no oxidation acids are washed out since they do not arise on the material



ZINC SEEPS WITHOUT POLLUTANTS

Rainwater running off zinc surfaces is either discharged into the sewage system, or seeped through troughs, infiltration ditches and shafts. This is completely uncritical, since sewage treatment plants can treat zinc without problems. In shafts and infiltration ditches, zinc is bound to sediment and cannot be absorbed by animals and plants – it is not bio-available. Successful seepage is dependent on the respective hydro-geological conditions, but here, too, there are solutions for a wide range of seepage situations which ensure a safe seepage.



ZINC PRODUCTS ARE ENVIRONMENTALLY-FRIENDLY, DURABLE AND DO NOT REQUIRE MAINTENANCE

Zinc has a tradition of more than 200 years thanks to its many advantageous properties as a sure protection for roofs and facades. Once it is engineered onto the building, it is low-maintenance and protects the building for generations. Its long life conserves resources.

ZINC HAS A HIGH RECYCLING RATE

Even at the end of its long life, construction zinc is still a valuable raw material and can be 100% recycled. The recycling rates for construction zinc are well over 90%. The recycled rate is approx. 60% over all applications of the material zinc (Source: 6). These quotas relate to the amount of material that returns back to the cycle at the end of the life cycle. This is the suitable parameter for construction zinc products.

THE ENERGY CONSUMPTION FOR RECYCLING MATERIAL IS LOW

In addition to the conservation of zinc resources, the high recycling rate also significantly improves the energy balance. The old material must only be re-melted before a re-use. This requires only 5% of the energy required for the production of primary zinc. The recycled zinc is, for example, used in galvanizing plants for corrosion protection of steel.

Due to the low melting point, comparatively little energy is required for the production of zinc sheet for roof and facade.

YOU BUILD ON TRUE VALUES WITH RHEINZINK

In the field of architecture, the topic of environmental compatibility has also long since influenced decision-making in the selection of materials. As a result, the RHEINZINK material, which has been developed for roof and facade cladding and roof drainage, is becoming increasingly important.

Architects appreciated the natural material long before the issue of sustainability influenced the general public. RHEINZINK has now become an integral component of architecture with which milestones of modern and sustainable construction are put in place. The alloy of fine zinc with a purity of 99.995% and exactly defined proportions of copper and titanium captivates with quality and convinces through timeless aesthetics. RHEINZINK is conflict-free, harmless and sustainable.

Would you like to know more about the "excellent" material? Then we will be happy to send you information!

All certificates can be found at www.rheinzink.de/nachhaltigkeit/oekologie/produktdeklaration-und-zertifikate

www.rheinzink.com



AN EXCELLENT MATERIAL

A decision for RHEINZINK is always a decision on behalf of future generations. Only a few building materials have a comparably positive ecological balance. It was not without reason that the natural material, after evaluating the entire life

cycle, was declared many years ago as an environmentally compatible construction product by the independent body of the Institute for Building and Environment (IBU). For more than 50 years, RHEINZINK has been using what others have just

discovered as innovation. The multitude of certifications and distinctions also set benchmarks in the international architectural scene.



List of sources: (1) Fact Sheet „Zinc Recycling – Material Supply“, International Zinc Association, 2013 // (2) „Critical Raw Materials for the EU“, European Commission, 2010 // (3) „Rohstoffrisikobewertung Zink“, DERA, 2014 // (4) Dodd-Frank Act, Sec. 1502, USA, 2010 // (5) UBA-Texte 19/05, Anhang A2, Umweltbundesamt, 2005 // (6) Fact Sheet „Zinc Recycling – Closing the Loop“, International Zinc Association, 2013 // (7) Fachvereinigung Betriebs- und Regenwassernutzung: fbr-top 11, 2012 // (8) S. Das, A. Green, „Importance of zinc in crops and human health“, ICRISAT, 2013 // (9) UNICEF, „Pneumonia and diarrhoea: Tackling the deadliest diseases for the world’s poorest children“, UNICEF, 2012