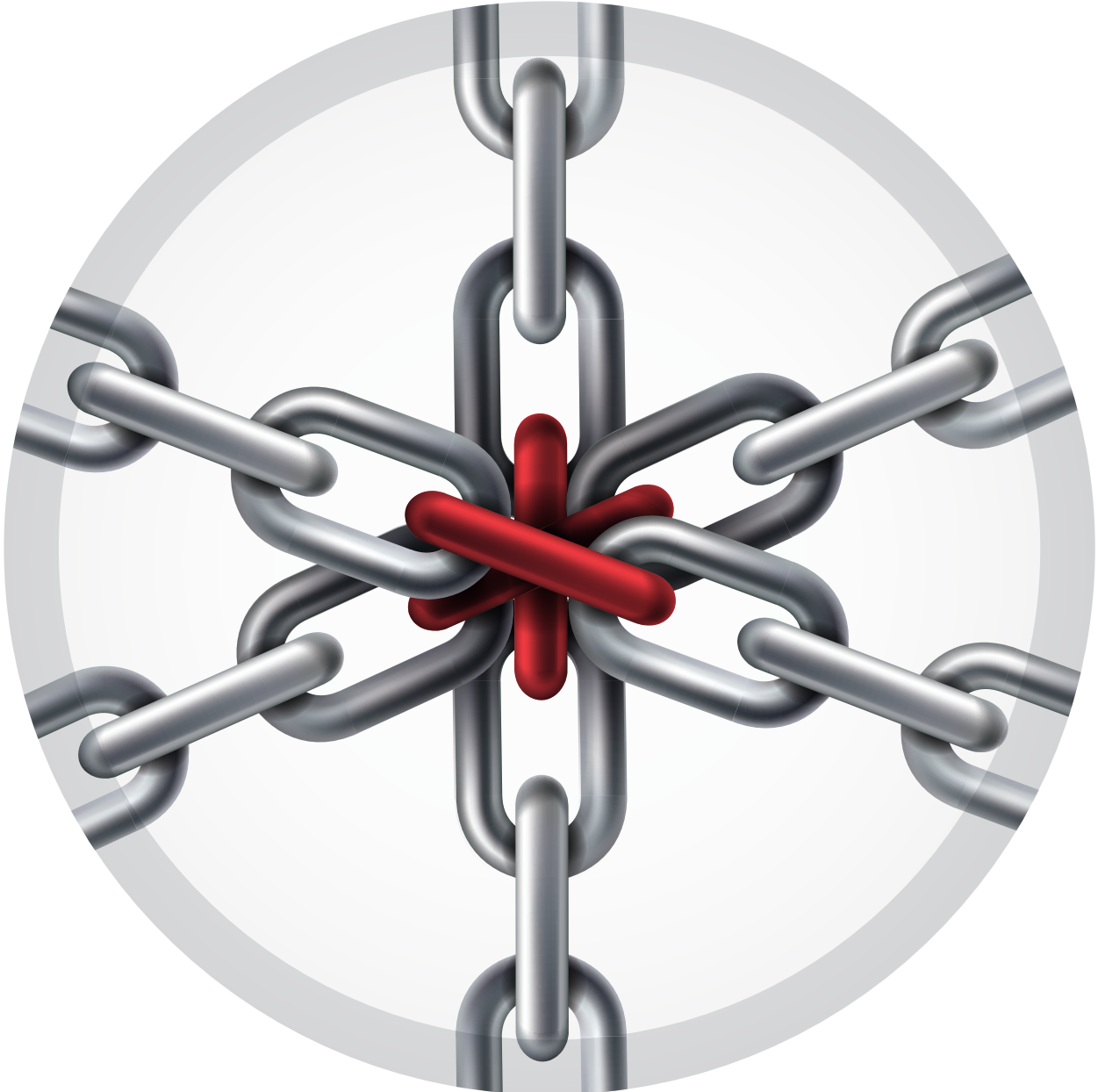


# KeyShure®

Chelated Minerals

YOUR LINK TO:  
SUPERIOR PERFORMANCE & EXCEPTIONAL VALUE



balchem®

# YOUR LINK TO SUPERIOR PERFORMANCE AND EXCEPTIONAL VALUE

The KeyShure® Chelated Mineral line combines superior performance with exceptional value. You get the quality you expect from a world-class manufacturer and the economical return you need. The KeyShure line includes the most important trace minerals, chelated with hydrolyzed protein to improve stability and reduce reactivity with other minerals, vitamins and nutrients.

## KeyShure®

### Chelated Minerals

- Proven higher bioavailability than other chelated trace minerals
- Superior performance in monogastric, ruminant and companion animals
- Proven performance in the presence of antagonists

### MINERALS AVAILABLE:

- Copper
- Iron
- Manganese
- Zinc



Organic trace minerals come in many types and formulations; leading to confusion and misconceptions about chemistry, terminology and methodologies used to determine quality, performance and value.

At Balchem, we strive to keep it simple; binding minerals to the highest-quality plant-protein-derived amino acids, in world-class facilities using a true chelation process. True mineral chelation was pioneered within the Balchem family of companies nearly 60 years ago and that expertise continues today in both the human and animal nutrition arenas.





## Chelated Minerals vs. Inorganic Minerals The Difference is Clear

**Decades of research have proven chelated minerals are more bioavailable than inorganic minerals (oxides, sulfates and hydroxychlorides).** This superior bioavailability allows for lower mineral concentrations in animal feeds leading to less excretion into the environment.

Inorganic mineral forms such as oxides, sulfates and hydroxychlorides are cheap but they typically have low bioavailability. Inorganic minerals are very reactive with other compounds in their environment and can bind with unabsorbable compounds (antagonists) like oxalates and phytates and

passed through the animal unabsorbed and then excreted.

By definition, a chelate is a chemical compound in which a metal molecule (mineral) and an organic molecule (ligand) are combined. The ligand is a critical component of a chelate that transforms the previously inorganic molecule into an organic mineral form, thus making it more bioavailable to animals.

The Balchem family of companies are the original chelation process pioneers. That dedication and commitment to excellence continues today in both human and animal nutrition.

### INORGANIC MINERAL SOURCES

X OXIDES

X SULFATES

X HYDROXYCHLORIDES

***CHELATED MINERALS ARE THE  
LINK TO SUPERIOR PERFORMANCE.***





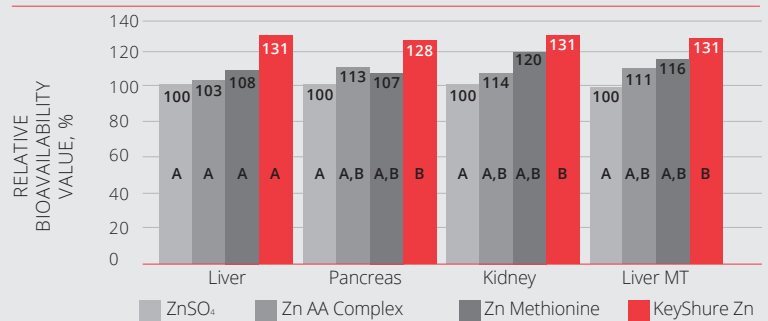


## KeyShure: The Link to Higher Bioavailability

**High-quality, chelated minerals deliver the consistent bioavailability animals need to maximize performance.** But not all chelated minerals perform the same. Two studies, conducted at the University of Florida, demonstrate the repeatable and consistently superior bioavailability of KeyShure® *Chelated Minerals*, in both monogastric and ruminant animals. Eight commercial chelated zinc products were compared to zinc sulfate.

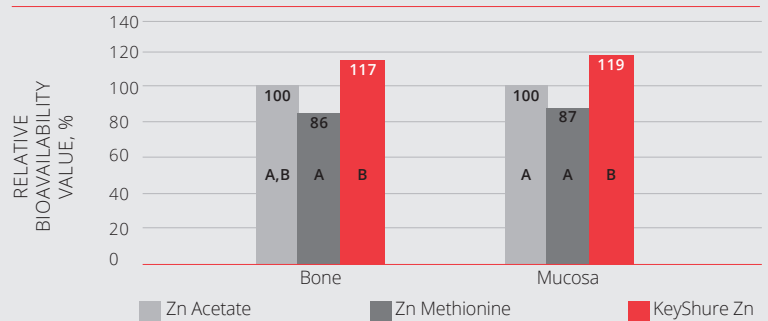
Only one product was statistically superior in trace mineral bioavailability to the control. KeyShure Zinc demonstrated 130% bioavailability in ruminants and 119% bioavailability in monogastrics compared to zinc sulfate. The study was repeated two years later and again, KeyShure Zinc demonstrated superior bioavailability.

**BIOAVAILABILITY OF DIFFERENT SOURCES OF ZINC (LAMBS)**



Cao et al., Journal of Animal Science 2000. 78:2039-2054  
 A,B: Bars with different letters had significantly different (P<.05) regression coefficients for determining REV.

**BIOAVAILABILITY OF DIFFERENT SOURCES OF ZINC (POULTRY)**



Cao et al., Animal Feed Science and Technology 2002. 101:161-170.  
 A,B: Bars with different letters had significantly different (P<.05) regression coefficients for determining REV.



## KeyShure: The Link to Greater Profitability

In the past, diets were often formulated with trace mineral levels in excess of the recommended levels to compensate for potential antagonists in feeds that can render trace minerals ineffective. However, feeding higher trace mineral levels can itself negatively affect utilization.

Higher trace mineral cost and increasing concern over trace mineral excretion into the environment make this strategy even less attractive. Include KeyShure® in the ration to help overcome the effects of antagonists, while supporting optimum performance and reducing mineral excretion into the environment.

# THIS IS ANIMAL NUTRITION & HEALTH

## RUMINANT

**ReaShure®-XC**  
Precision Release Choline

**AminoShure™-XM**  
Precision Release Methionine

**AminoShure™-L**  
Precision Release Lysine

**NitroShure™**  
Precision Release Nitrogen

**NiaShure™**  
Precision Release Niacin

**Fibrase™**  
Rumen Fermentation Enhancer

**KeyShure®**  
Chelated Minerals

## MONOGASTRIC

**PuraChol**  
Choline Chloride

**Tannin™ 50**  
Encapsulated Tannin

**ProAcid™**  
Encapsulated Acid

**KeyShure®**  
Chelated Minerals

Balchem Animal Nutrition and Health is the global leader in choline production, chelation and encapsulation technology. With a growing portfolio of nutrition products and a dedication to innovation and industry sustainability, Balchem is leading the charge to meet the nutritional needs of ruminants, monogastrics and companion animals.

### WE ARE:

#### Real People

With a passion for animal nutrition, we are intense advocates for our customers and the animals they feed. You can count on us to provide honest, candid advice to address your toughest challenges.

#### Real Science

Balchem delivers proven science backed by years of success. Our products are some of the most extensively researched in the industry, further supported by documented on-farm results.

#### Real Results

In the end, it all comes down to results. We deliver real results you can count on – results that exceed your expectations and deliver value to your customers and your bottom line.



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