

# CHROMIUM AMINO ACID CHELATE

High Bioavailability Chromium Supplement  
For Pigs and Poultry

**CHROMIUM AMINO ACID CHELATE** is a 4th generation chelate, produced in a 3 stage chelation process utilizing final form amino acids as ligands, assuring complete chelation of metal ions, resulting to unequalled bioavailability and non-reactivity to vitamins and other nutrients in the gut

**CHROMIUM AMINO ACID CHELATE** exhibits 30%-400% higher bioavailability compared to other chromium forms (nicotinate, picolinate, yeasts and chlorides)

**CHROMIUM AMINO ACID CHELATE** the superior, high bioavailability chromium supplement for predictable and cost effective reproductive and growth performance enhancement.

**COMPOSITION:** 0.04% (400,000mcg bioavailable chromium/kg of premix).



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## CHROMIUM

*Impact on Reproduction and  
Composition of Gain*



**CHROMIUM AMINO ACID  
CHELATE**

**Feed Grade and Water Soluble  
Supplement Powder**

# CHROMIUM

## *Description, Mode of Action, Forms, Absorption and Impact On Productivity*



Chromium, a heavy metal, exists in nature mostly in its trivalent form, and is essential in activating certain enzymes and in stabilizing proteins and nucleic acids. In metabolism, its primary role appears to be in sensitizing cells to insulin action, leading to enhanced transport into cells of glucose and other metabolites and ions (amino acids, minerals, fats, etc) and the eventual increased biosynthesis of cell parts, secretions and cell growth (1).

### ABSORPTION

Chromium, in its trivalent form, is very poorly absorbed. Chelation, a process where the metal is chemically attached to ligands such as organic acids, saccharides, etc., increases absorbability of the metal. Studies show that the comparative absorbabilities are highly dependent on the chromium form (1,5).

### COMPARATIVE ABSORBABILITIES OF DIFFERENT CHROMIUM FORMS (5,6,7)

Chromium aminoacid	>90%
Chromium polynicotinate	>70%
Chromium picolinate	>60%
Chromium yeast	<25%
Chromium chloride (inorg.)	very poor

### EFFECT ON MUSCULATURE AND FAT DEPOSITION

Increased uptake of glucose, amino acids and other metabolites by muscle cells as a result of chromium induced insulin sensitivity initiates improved cellular activity and growth. Thus, muscle fibers tend to increase in size and mass. The increased cellular uptake of glucose also directly reduces the amount of energy bearing nutrients circulating in the blood, resulting to reduced conversion by the liver of excess energy into fat and the eventual decrease in fat deposition.

### EFFECT ON REPRODUCTIVE FUNCTION

Chromium induced insulin sensitivity has been shown to exert effect on the brain level by increasing the frequency of luteinizing hormone release, which in turn improves ovarian follicular maturation and increased ovulation rate. Production and release of progesterone by the corpus luteal cells are also increased, helping improve embryo attachment to the uterus ensuring survival/proper maintenance of the fetuses to term.

### SUMMARY DATA ON EFFECTS OF CHROMIUM SUPPLEMENTATION (1,2,3,4)

Available data reveal that 200 ppb of active, bioavailable chromium supplementation supports:

#### REPRODUCTIVE

- \* Absolute improvement of 13% in farrowing rate
- \* Improvement up to 2 pigs born alive/litter
- \* Absolute improvements of 0.7-1 pig/sow/yr
- \* Significant reduction in culling percentage
- \* Improvement in boar semen and quality
- \* Increased egg mass and prolonged peaking in layers

### MUSCULATURE AND LEANNESS

- \* Positive reduction in backfat
- \* Positive increase in loin eye area
- \* Positive increase in carcass protein and dressing percentage
- \* Improvement in FCR

### RECOMMENDED DOSE AND USE

**0.04%: 500g/ton of feed**

**\*To attain recommended dose of 200ppb of active, bioavailable chromium**

**Sows/boars/layers - continuously in feed**  
**Replacement gilts/pullets - start at selection age**  
**Market Hog/broilers - start at growing stage**

\*A loading period of 30 days is usually necessary for animals to build up appropriate levels in the body (2)

Major Sources:

1. The Role of Chromium in Animal Nutrition. National Research Council 1997.
2. Lindemann, M. 1995, 1999. Series of Studies on Dietary Chromium Effects on Pigs in Commercial Setting.
3. Campbell, R.G. 1996. Effects of Supplemental Chromium on Fertility and Fecundity under Commercial Conditions
4. W.E. Trout. 1996. Chromium and Enhanced Reproductive Efficiency.
5. Anderson, et.al. 1996. Dietary Chromium Effects on Tissue Chromium Concentration and Chromium Absorption in Rats.
6. Olin, K., et.al.,1994. Comparative Retention/Absorption of Chromium from Cr Chloride, Cr nicotinate, Cr picolinate in Rat Model.
7. Fang, S. et.al., 1997. Absorption Levels of Cr polynicotinate and Cr amino acid chelate.