# StarShrimp

A Novel Growth Promoter of Organic Chelated Minerals

Delivers More

## Advanced Biomineralization Premix Formulation for High Bioavailability of Macro and Trace Minerals in Shrimp and Prawn

- Minerals are essential constituents of all cells.
- Minerals form the greater portion of the shell/ bones and are also essential components of the cuticle/soft tissues, muscles, nerve cells, enzymes, glandular secretions (i.e. hormones) and blood.
- Minerals regulate the "excitability" of muscle and nerve tissues and are essential in maintaining proper osmotic pressure equilibrium.


**StarShrimp - The ideal way to attain maximum "bioavailability" for better profitability.**

**Enhances Bioavailability of essential minerals**

- **StarShrimp provides essential macro and trace minerals in chelated form.**
- **Organic trace mineral in the form of a unique chelated crystalline complex in which a specific amino acid is used as a ligand.**
- **This chelated form is able to absorb minerals very well by the digestive system of Shrimp and Prawn.**

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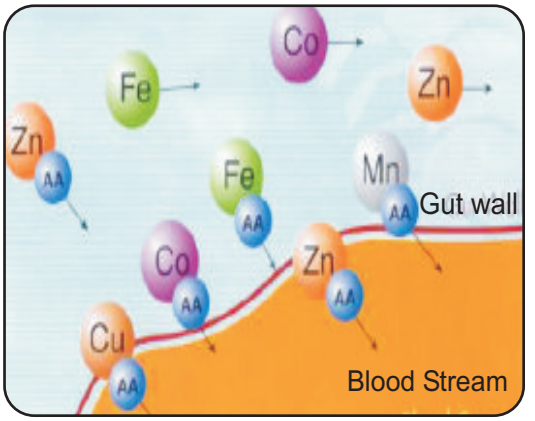
**StarShrimp** is a product with unique chemistry; the complex mineral compound is capable of reaching growing shrimp and prawn through another path way, giving the grower more MINERALS and VALUE for their money.

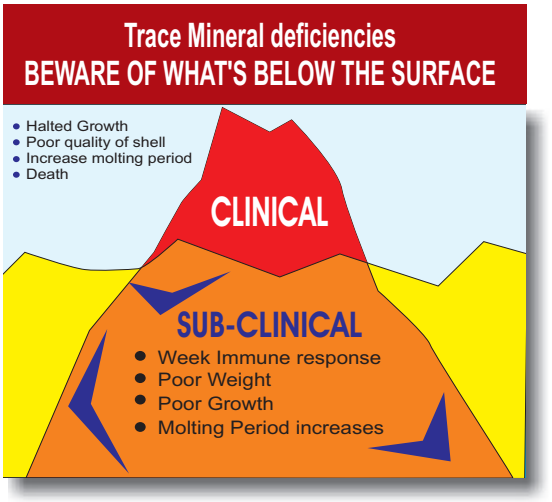
## StarShrimp - Chelation

- Chelation literally means, “bringing together”.
- Bonding formed between a metal ion (mineral) and a ligand (amino acid chelating agent) carrier.
- A Chelae (claw) is a ring structured compound, which is formed between organic molecules and metallic ion.




## StarShrimp - Advantages of Chelated form :

- Direct adsorption after ingestion - Saves energy.
- Fastest way of trace mineral absorption.
- No chemical reaction and precipitation.
- Amino acid benefit for growth.
- Low quantity required for use.
- High efficiency.
- Provides appropriate and effective macro and trace minerals.




## The Role of StarShrimp on moulting frequency

Shrimp and Prawn need dietary sources of minerals for growth because of repeated moultings wherein minerals are lost. Moulting is the process by which the organism sheds its existing exoskeleton in order to grow larger. **StarShrimp** provides Chelated Minerals that keeps shrimp and prawn in healthy condition that leads to regular moulting.

Feeding of **StarShrimp** achieves better survival, moulting frequency and best growth performance with least Feed Conversion Ratio (FCR) in Shrimp and Prawn.

### The Role of Macro Minerals of StarShrimp

| Macro Mineral | Function |
|---|---|
| Ca | Acid-base balance, Cuticle construction, Blood clotting, Membrane potential, Absorption of Vitamin $B_{12}$, Muscle contraction |
| P | Cuticle construction (especially during early formation), Metabolic processes, Essential component of phospholipid, nucleic acid, phosphoprotein and ATP |
| K | Physiological advantage : Osmoregulation, Acid-base balance, Membrane potential |
| Na | Physiological advantage : Osmoregulation, Acid-base balance, Membrane potential |
| Cl | Physiological advantage : Osmoregulation, Acid-base balance, Membrane potential |
| Mg | Physiological advantage : Osmoregulation, Cuticle construction, Membrane potential,Enzymatic process |
| S | Cuticle construction, Binding site of glycosaminoglycans : Nucleator for tissue mineralization |

### The Role of Trace Minerals of StarShrimp

| Trace Mineral | Function |
|---|---|
| Zn | Tissue mineralization, Cofactors and/or activators of variety of Enzymes e.g. alkaline phosphate, Carboxypentidase, Metalloenzymes, Life span |
| Fe | Utilized in various enzymes: Cytochrome, Catalases, Peroxidases and dehydrogenases, Lipid oxidation |
| Cu | Tissue mineralization, Enzyme Activity, Respiratory pigment |
| Mn | Cuticle construction, Cofactor for enzymes : phosphate transferase and dehydrogenase, alkaline phosphatase, arginase and hexokinase |
| Co | Essential component of Vitamin $B_{12}$ (Cobalamine) |

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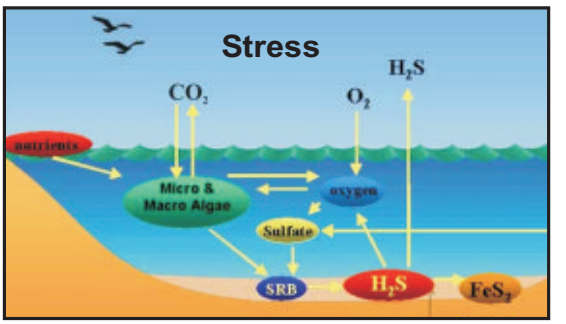
## StarShrimp Properties

• For better survival rate • For physiological balance • For high efficiency moulting frequency • For cuticle performance • For contributing the metabolism and other biochemical processes i.e. enzyme activity, electron transfer. • For better growth performance and quality yield • **StarShrimp** reduces antagonistic interference. • The amino acid escorts the metal through the gut wall and into the blood stream.

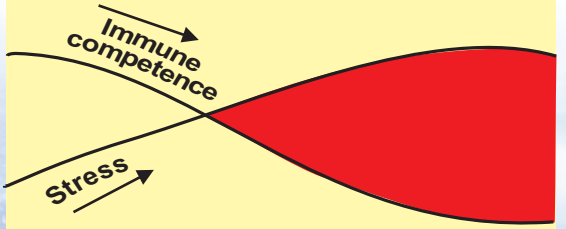
**StarShrimp** corrects Organic Nutrient Deficiency providing all major macro and trace minerals to Shrimp and Prawn more efficiently and strengthening these culture organisms in aquaculture pond system against various stress factors.

### Need for Bioavailable minerals when stress increases:

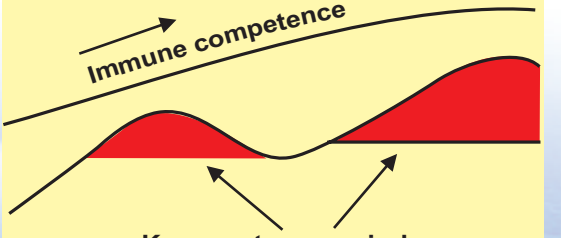
- Heat and Humidity
- Temperature
- Salinity
- Osmotic Balance
- Acid-base balance
- Tissue mineralization
- Cuticle formation




### Relationship of Immune System, Stress and Disease




### Stress Strategy




**+ Stress**
**- Immune function**
**= Disease break**

**+++Immune function**
**+ Stress**
**= No Disease break**

### Composition

Essential Macro and Trace Minerals in Organic form... Ca, P, K, Na, Mg, S, Fe, Co, Cu, Mn... In Chelated form which binds with Amino Acids and with other growth promoters.

### Administration and Dosage

**Shrimp and Prawn**
**Normal condition:** 10 gm per 1 kg feed. 1-2 days before and after peak moulting and during stress recovery: 30 gm per 1 kg feed or as advised by Aquaculture Consultant.

**Presentation :** 500 gm and 1.0 kg.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