



GrowMET

MinMET

StressMET

MoldMET

## GrowMET

GrowMET presents a “natural” solution for tackling this issue and to guarantee antibiotic residue free meat and egg.

**GrowMET:** Specially formulated proprietary product contains metabolites from specially selected mushroom growing at high altitudes (containing branched chain amino acids, nucleotides and polysaccharides), selected active molecules from garlic extract and bio-active essential oils.

### Mechanism of actions:

- Branched chain amino acids like leucine, isoleucine and valine undergo metabolism extra-hepatically. These branched chain amino acids along with nucleotides provide immunity of very high order to the birds.
- Active molecules from Garlic especially organosulphides have broad spectrum activity against all pathogens – and they act by intervening in metabolic processes of microbes.
- Essential oils used in the formula helps in penetrating the cell walls of the pathogens.

### Results from trials

- Weight gain of birds belonging to GrowMET treated birds was 7.4% both with respect to “no treatment” birds and positive control.
- More than 10% FCR improvement with GrowMET treated birds when compared to both “no treatment” birds and positive control.
- 29% mortality observed in the case of “no treatment” and 4% in case of positive control and no mortality in the case of GrowMET

### Dosage

Poultry-Broilers and Layers 200g per ton of feed

- To prevent ill-effect of broad spectrum pathogens
- To promote growth and health even in the absence of pathogens *OR as advised by nutritionists*

## MinMET

Individual or custom mixed chelated minerals MinMETs-(Cu,Mn,Fe,and Zn,)based on 'true chelates' and analytical support.Most 'value-added' are those based on HydroxyMethionine,which delivers specific benefits to ruminants.

- MHA (4-Methylthio-2-hydroxybutanoic acid) is not an amino acid and therefore do not get recognized by rumen microbes and hence possess ability to bypass rumen
- For the same reason trace-mineral chelate also has got rumen bypass characteristics
- Whereas glycine, methionine or any other amino acids or peptides and respective trace mineral chelates are susceptible for attack by rumen microbes
- However, after bypassing rumen MHA and chelates of MHA undergoes trans-amination converts itself into methionine in small intestine

### MinMET range of trace mineral chelates

MinMET content	Metal	Ligand content	Ligand
Cobalt	12%	MHA	52% min
Copper	12%	MHA	52% min
Ferrous	12%	MHA	52% min
Manganese	12%	MHA	52% min
Zinc	12%	MHA	52% min
Chromium	6.3%	Nicotinic acid	45% min



## StressMET

Perfect combination of electrolytes and natural bioactives for stress relief.

Stress buster-StressMET-based on electrolytes, and natural herbal ingredients, including custom synthesized, trivalent organic Chromium. Apart from ensuring high bio-availability of trivalent chromium, during the breakdown Nicotinic Acid is released which has a nutritional role to play !!Chromium as a micronutrient (which is well known) is a 'insulin activator' and helps in control of Cortisol during times of stress in animals and humans !!

StressMET consists of

- Sodium and Potassium chloride
- Sodium bicarbonate and Sodium citrate
- Ammonium chloride
- Ascorbic acid
- Flavanoids from mulberry extract
- Betain
- Dextrose

## MoldMET

Specific potent anti mold additive for use in conditions where there is high atmospheric humidity, or feed miller is using higher moisture, ingredients like 'new' maize.

### Need for a mold inhibitor in animal feed

- High moisture content in the feed ingredient
- High relative humidity prevalent in tropical conditions
- Inadequate storage infrastructure and practices
- Poor transport conditions

### MoldMET-Cu product details

Oxine Copper is the active ingredient

- Oxine Copper is known to be a mold inhibitor and has fungistatic effect
- Coordination compound between copper and the organic ligand 8-hydroxyquinoline

### Toxicity profile – safe at low concentration

- Acute oral - rat, Oxine Cu 99.5% LD50 9930 mg/kg
- Acute dermal – rat, Oxine Cu 99.5% LD50 > 2000 mg/kg
- Primary Dermal Irritation, : rabbit Oxine Cu 99.5% : No irritation observed
- Dermal sensitization, guinea pigs- Oxine Cu 99.5% : Not a dermal sensitizer
- Carcinogen – Not reported as carcinogen

### Source

- June 13, 2006 Review Memorandum “Oxine Copper (copper 8-quinolinolate) - Endpoint Selection Report” from T.F. McMahon, Ph.D., Senior Toxicologist, AD (USEPA, 2006a).
- Handbook of preservatives – Edited by Michael Ash, Irene Ash

### Mechanism of action of Oxine-Cu

- Active at low concentrations against significant plant pathogens and relatively active against important spoilage and mycotoxin producing moulds
- Albert et al. proposed that the 1:2 chelate of copper(II) 8-quinolinate penetrated the cell and dissociated to a 1:1 half chelate and free 8-quinolinol. The half chelate became the toxic entity by combining with, and blocking, metal-binding sites on enzymes.

### Product Presentation and usage level

- MoldMET-Cu 60% - Designed for mixing with feed at 25g/MT and in very high moisture conditions upto 50g/MT
- MoldMET-Cu 60% can also be mixed with toxin binders for synergistic actions at 15-20g/Kg of mycotoxin binder
- MoldMET- Cu 2% in water soluble – liquid form along with blend of organic acids; formulation for spray on high moisture containing feed ingredient seeds at a dilution of 200-500 times

**Note:** Products will not be offered nor will be supplied to countries where concerned products are protected by Patents. It is the purchaser's responsibility to ensure that the product(s) requested are not covered by patent in their country.



**METRO EXPORTERS**

Kakad Chambers, 132, Dr. A. B. Road, Worli, Mumbai : 400018.

Tel. No. 91-22-24916500, Fax No. 91-22-24916504

Email: [pharma@metroexporters.net](mailto:pharma@metroexporters.net). Website: [www.metroexporters.com](http://www.metroexporters.com)