



AZOMITE[®] Matrix for Feed Formulation

Some Common Sense Guidelines for Recognized Beneficial Minerals
Revised January 4, 2013

| | Typical AZOMITE [®] | | Formulate |
|--|---------------------------------|-------------|--------------|
| | Analysis | Element | Feed |
| Complex Mineral Form | | | Using* |
| Calcium Oxide (CaO) | 3.67% | Calcium | 2.6230% |
| Chlorine (Cl) | 0.22% | Chlorine | 0.2200% |
| Ferric Oxide (Fe ₂ O ₃) | 1.37% | Iron | 0.9582% |
| Magnesium Oxide (MgO) | 0.78% | Magnesium | 0.4704% |
| Manganese Oxide (Mn ₂ O ₃) | 0.02% | Manganese | 0.0139% |
| Nitrogen (N) | 0.15% | Nitrogen | 0.1500% |
| Phosphorous Pentoxide (P ₅ O ₅) | 0.15% | Phosphorous | 0.0989% |
| Potassium Oxide (K ₂ O) | 5.23% | Potassium | 4.3417% |
| Silica Oxide (SiO ₂) | 65.85% | Silicon | 30.7806% |
| Sodium Oxide (NaO ₂) | 2.07% | Sodium | 0.8654% |
| Sulfur Trioxide (SO ₃) | 0.21% | Sulfur | 0.0841% |
| Consider assigning kcals: | | | |
| Kcal of ME/lb Feed-Grit (recent research calculates 6,983 kcals)** | | | 4,000 kcal** |
| Kcal of ME/kilo Feed-Grit | | | 8,800 kcal** |

* Note 1 – The suggested matrix values above were determined by dividing the atomic weight of each beneficial element by the total atomic weight of the mineral compound. That percentage was multiplied by the percentage of the mineral compound typically found in AZOMITE. While the actual biological availability of these recognized trace elements has not been determined, these values are offered as a common sense approach to assigning reasonable values to the product.

** Note 2 – A study was completed in February 2011, by AHPharma, Inc., with James McNaughton, PhD as study director. A detailed study analysis is available for review. The 42-day old bird study indicates common sense assignment of from 4,027 to 6,983/lb is supportable by the regression calculation, depending on the method of FCR assumed from the 2X4 factorial study with 10 replications of 54 mixed sex Ross 708 broilers (Actual FCR or Mortality Adjusted-Common Weight FCR).

| Other beneficial elements in AZOMITE [®] , typical analysis below: | | | |
|---|------|-----------------|------|
| | PPM | | PPM |
| Chromium (Cr) | 6.1 | Molybdenum (Mo) | 12.6 |
| Cobalt (Co) | 22.3 | Selenium (Se) | 0.7 |
| Copper (Cu) | 12 | Vanadium (V) | 7.8 |
| Fluorine (F) | 900 | Zinc (Zn) | 64.3 |
| Iodine (I) | 2.2 | | |

In addition to all the elements listed above, many more ultra-trace elements have been identified in AZOMITE[®]. This mineral rich product typically contains a total of 75 of the 92 naturally occurring elements, including key Rare Earth Elements.