A NUTRITIONAL SUPPLEMENT TO
- INCREASE DIETARY PHOSPHORUS UTILIZATION
- INCREASE DIETARY CALCIUM UTILIZATION
- OPTIMIZE BROILER BONE HEALTH
- INCREASE CARCASS QUALITY AND YIELDS
Why $1\alpha$OH-$D_3$ is the best source of Vitamin D for broilers and turkeys

Recomended $1\alpha$OH-$D_3$ in Broiler Diets

<table>
<thead>
<tr>
<th>$1\alpha$OH-$D_3$</th>
<th>Phytase</th>
<th>Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\mu g/kg$</td>
<td>Units</td>
<td>Ca</td>
</tr>
<tr>
<td>5</td>
<td>-</td>
<td>0.15</td>
</tr>
<tr>
<td>5</td>
<td>+</td>
<td>0.20</td>
</tr>
</tbody>
</table>

For some reason, modern broiler chickens cannot make the active hormonal form of Vitamin D, $1,25-(OH)_2-D_3$, fast enough. Feeding just 5 $\mu g$/kg of $1\alpha$OH- $D_3$ is the best way to overcome this problem. When $1\alpha$OH- $D_3$ is fed, it is quickly hydroxylated to the active $1,25-(OH)_2-D_3$. Calcium absorption, and as a result, phosphorus and the divalent trace mineral absorptions are also increased. With less calcium in the digestive tract to form insoluble fatty acid soaps, fat absorption is improved. Bone is another target tissue for $1,25-(OH)_2-D_3$, so the incidences of bone abnormalities, calcium and phosphorus-deficiency rickets and tibial dyschondroplasia are all lowered or completely eliminated by adding $1\alpha$OH-$D_3$ to broiler diets.

An important property of $1\alpha$OH-$D_3$ is that it works independently of exogenous phytase enzymes. Phytase works in the upper gastro-intestinal tract at low pH to aid in the digestion of phytate to phosphate and inositol.

**Effect of cholecalciferol derivatives on broiler tibia ash**

This enzyme is NOT regulated and is the reason broilers respond to 1αOH-D₃ or 1,25-(OH)₂-D₃.

This enzyme is highly regulated and is the reason broilers do not respond to extra sunshine or dietary vitamin D.

Activated 1αOH-D₃ works in the lower gastrointestinal tract at high pH to aid in calcium, phosphorus and trace mineral absorptions. Although 1αOH-D₃ and phytase work together to increase plant phosphorus utilization, only 1αOH-D₃ has bone as a target tissue and so is directly active in reducing bone abnormalities.

Heat stable 1αOH-D₃ is the best choice to maximize feed utilization efficiency and maintain broiler bone and leg health.
$1\alpha$OH-D$_3$ - increase performance and quality.

**Feeding regimens from Driver et al. Poultry Science 2005**

<table>
<thead>
<tr>
<th></th>
<th><strong>Starter (0 - 18 days)</strong></th>
<th><strong>Grower (19 - 35 days)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.60% Ca</td>
<td>0.30% Ca</td>
</tr>
<tr>
<td></td>
<td>0.24% nPP</td>
<td>0.14% nPP</td>
</tr>
<tr>
<td>2</td>
<td>0.60% Ca</td>
<td>0.30% Ca</td>
</tr>
<tr>
<td></td>
<td>0.24% nPP</td>
<td>P + 1$\alpha$OH-D$_3$</td>
</tr>
<tr>
<td>3</td>
<td>0.60% Ca</td>
<td>0.30% Ca</td>
</tr>
<tr>
<td></td>
<td>0.24% nPP</td>
<td>1$\alpha$OH-D$_3$</td>
</tr>
<tr>
<td>4</td>
<td>0.60% Ca</td>
<td>0.30% Ca</td>
</tr>
<tr>
<td></td>
<td>0.24% nPP</td>
<td>P + 1$\alpha$OH-D$_3$</td>
</tr>
<tr>
<td>5</td>
<td>0.90% Ca</td>
<td>0.80% Ca</td>
</tr>
<tr>
<td></td>
<td>0.45% nPP</td>
<td>0.45% nPP</td>
</tr>
</tbody>
</table>

$1\alpha$OH-D$_3$ = 5 $\mu$g/kg and P - 500 fpu Phytase

**Body weight gain (1–35 days)**

![Body weight gain chart](chart1.png)

**Broken tibias after evisceration (%)**

![Broken tibias chart](chart2.png)
**FURTHER HELPFUL READING**

**ASK US FOR COMPLETE REFERENCES**


Product Data Sheet

**Drum-Dried 1αOH-Vitamin D₃**

**Description**

Drum-dried 1αOH-Vitamin D₃ is a light brown, dry, free-flowing product in the form of fine flakes. The particles contain 1αOH-Vitamin D₃ in peanut oil as droplets in starch. Sodium benzoate and sorbic acid are added as preservatives, BHT as an anti-oxidant, and sorbitan monostearate as an emulsifier.

**Product Identification**

*Chemical name:* 9,10-secocholesta-5,7,10(19)-triene-1,3-diol,(1-α,3-β,5Z,7E)

*Synonyms:* alfacalcidol, 1-α-hydroxycholecalciferol, 1-hydroxy-vitamin D₃

*CAS Reg. No.* 41294-56-8

*Molecular Weight:* 400.3

**Specifications**

*Appearance:* Dry, light brown flakes

*Fineness:* Min 100% through a 20-mesh screen

*Flowability:* Excellent

*Loss on drying:* Maximum 5%

*Sorbic acid:* Present

*Benzoate:* Present

*Assay:* Minimum 15,380,000 I.U./kg

*Microbiological Purity:* corresponds

*Bulk Density:* approximately 0.6 g/ml

**Characteristics**

*Solubility:* Dispersable in warm water (35°-40° C) to form a milky emulsion

*Stability:* In the dry flakes, stability is very good even in the presence of minerals. It has a shelf life of 24 months stored in the original container under recommended storage conditions.

*Applications:* For dietary supplementation of poultry feed. *To supply 1αOH-Vitamin D₃ at the recommended 5µg/kg of finished feed, add 12.5g of this product per metric ton of finished feed.

*Storage:* Store in tightly closed original container, protected from light, in a dry place at room temperature.

*Packaging:* 10 kg pails

*Country of Origin:* United States of America

*Safety:* This product is safe for its intended use. Avoid inhalation of dust or direct contact by applying suitable protective measures and personal hygiene.

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