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V 1.0



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# Coated Cysteamine ( PerC Cys )

Coated cysteamine (PerC Cys), produced by Hunan Perfly Biotech Co, Ltd., is a new type of coated cysteamine product. It uses the unique three-layer coating controlled-release technology to realize precise release in alimentary canal.

## Main Ingredients

Cysteamine, starch, antioxidant, etc., in which cysteamine  $\geq 27\%$

## Action Mechanism

Meat ruminants: there are so many ways to promote growth for animals, in which the most direct way is to change the hormone secretion. Growth hormone can accelerate the protein synthesis in bodies to decrease the fat deposition, but it can lead to the hormone residual by the direct use in the livestock daily ration, so it has been prohibited to use. Cysteamine can promote the secretion of growth hormone by using up somatostatin so that it is better to promote growth and improve lean-percentage; meanwhile, cysteamine removes the inhibitory effects of somatostatin on digestive system by depleting somatostatin, so that feed conversion rate can be improved largely; in addition, cysteamine can synthesize glutathione to have antioxidant effects into full play, which can improve meat quality a lot.

Milk ruminants: neuroendocrine system is needed to maintain animals' lactation, in which growth hormone and somatostatin have promoting and inhibitory effects on lactation, respectively. The use of exogenous growth hormone, such as rBST, can significantly make milk yield increase by 10-15%, but it is prone to cause hormone residues, which is prohibited in domestic. Cysteamine can use up somatostatin by neutralizing endogenous somatostatin, indirectly improving growth hormone level to make milk yield up, whose results are consistent with that of rBST.

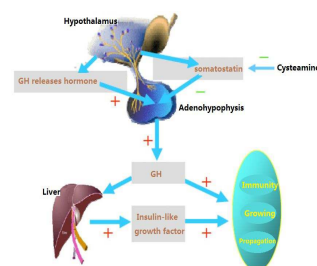


Figure 1. The Mechanism of Cysteamine Promoting Growth

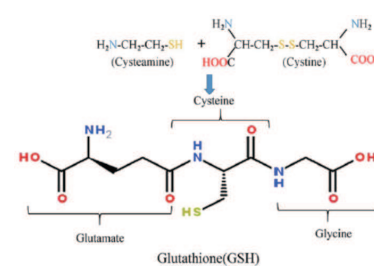


Figure 2. The Antioxidant Mechanism of Cysteamine

## Characteristics

1. Unique three-layer coating technology to realize the controlled-release in the whole alimentary canal.

Excessive and fast release of cysteamine can induce alimentary canal ulcer, but fixed-point slow release of small doses of cysteamine can promote digestion. So, the rate of coated cysteamine is very important. This product uses unique three-layer coated technology to realize the controlled-release according to the different requirements of different sites in alimentary canal, not causing the damage on alimentary tract and the fatigue phenomena caused by feedback inhibition.

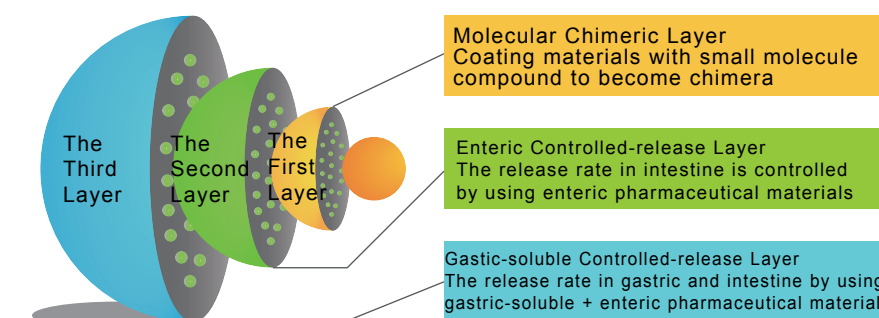


Figure3. Manufacturing Technique of PerC Cys

2.Good stability

The product is treated with the unique coatings,, so it can be moisture-proof, anti-oxidation, high-temperature resistance, and it is particularly stable during feed processing and storage.

3.Good synergy

This product's unique excipients have a good synergy, which can help cysteamine remove the inhibitive effect of somatostatin (SS) on endocrine hormone to promote the synthesis and secretion of growth hormone and to accelerate the absorption of nutrients, metabolism, and protein synthesis.

4. Wide range of application

The use of product exists no species differences, being suitable for all kinds of ruminants.

## Efficacy

1. PerC Cys uses up somatostatin (SS) to promote the anabolic metabolism, significantly making the growth rate increase.

2. PerC Cys promotes the digestion and absorption of nutrition to improve F/G.

3. PerC Cys can significantly improve lean-percentage and carcass quality, eventually causing ruddy flesh, strong water binding capacity (WBC), and less drip loss.

4. PerC Cys can improve lactation yield and milk quality

## Compared Advantages

### 1. The Advantages of Water-proof and Antioxidation



Figure 4. The cooperating effects between different cysteamine and micro-elements

From the above picture, it is seen that PerC Cys cannot react with micro-elements to change color.

### 2. The Advantages of Three-layer Coating

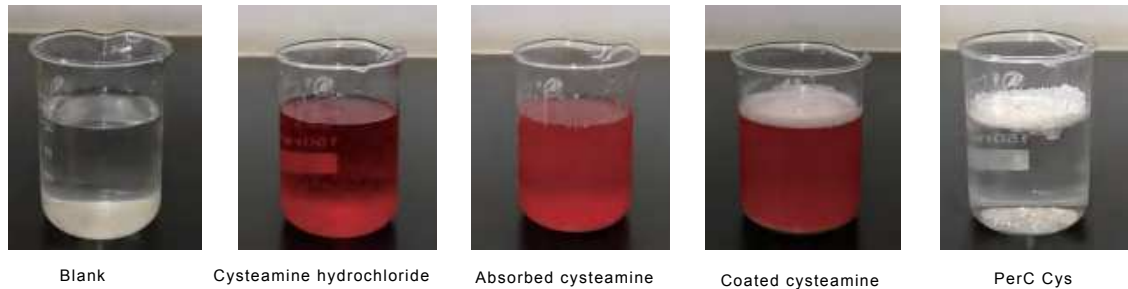


Figure 5. Dissolved effect of different cysteamine

From the above picture, it is seen that coated cysteamine (PerC Cys) can not be soluble quickly to react with the redox indicator, indicating that the coating effect is good.

## Applied Effects

### 1. The Application in Dairy Cows

30 Holstein cows (at the late stage of lactation) were selected for this trial, average weight was about 600kg. They were randomly divided into two groups, control group and trial group. Control group was fed with basal ration, trial group was fed with 20g/day\*each coated cysteamine (PerC Cys) based on basal ration. Whole trial period was 30 days.

The results showed that coated cysteamine (PerC Cys) added into rations can make milk yield increase by more or less 10%, so that milk protein percentage and milk fat percentage were increased by 7% approximately.

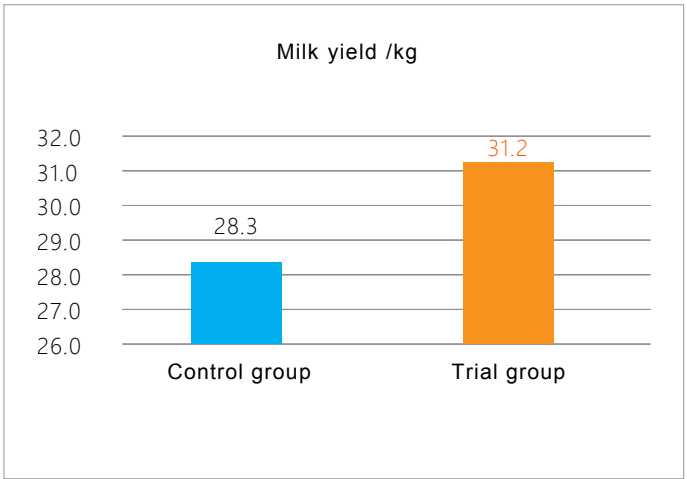


Figure 6. The effect of coated cysteamine (PerC Cys) on milk yield of cows

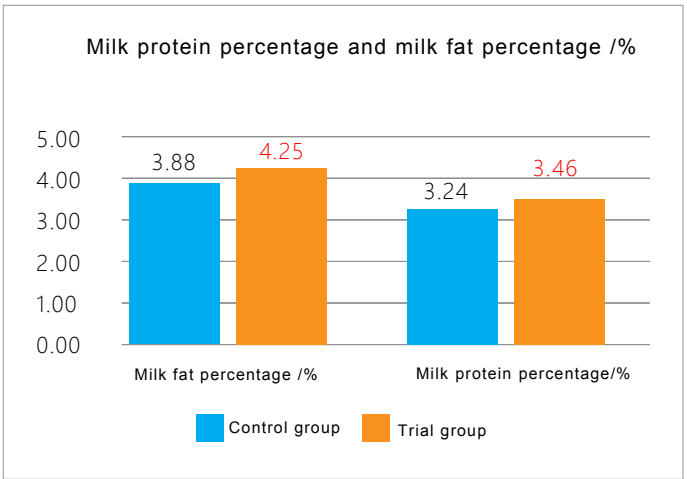


Figure 7. The effect of coated cysteamine (PerC Cys) on milk quality of cows



2. The Application in Beef Cattle

30 beef cattle were selected for this trial, average weight was about 400kg. They were randomly divided into two groups, control group and trial group. Control group was fed with basal ration, trial group was fed with 1kg/t coated cysteamine (PerC Cys) based on basal ration. Whole trial period was 30 days.

The results showed that coated cysteamine (PerC Cys) added into rations can make daily gain increase by 11%

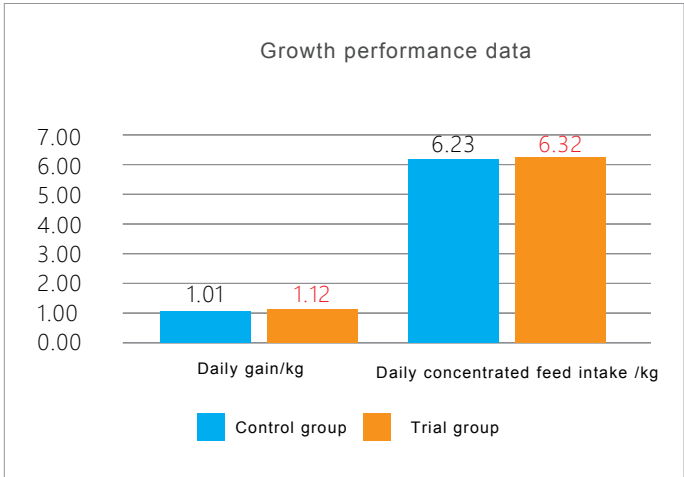


Figure. 8 Effects of coated cysteamine (PerC Cys) on growth performance of beef cattle

3. The Application in Mutton Sheep

40 Boer goats were selected for this trial, average weight was about 400kg. They were randomly divided into two groups, control group and trial group. Control group was fed with basal ration, trial group was fed with 10mg/kg coated cysteamine (PerC Cys) (10mg active ingredients/1kg body weight) based on basal ration. Whole trial period was 30 days.

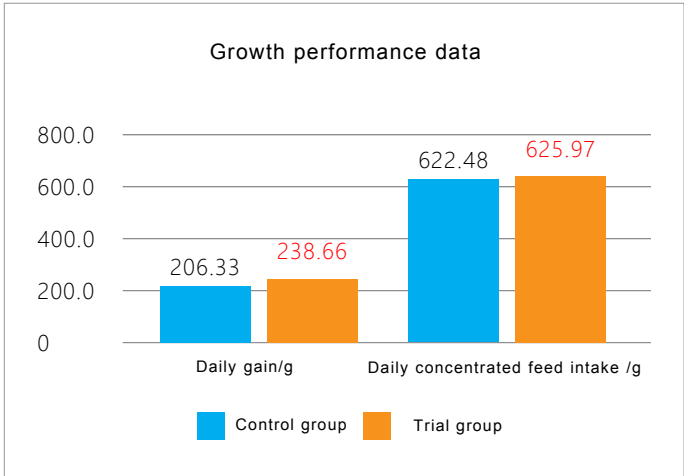


Figure. 9 Effects of coated cysteamine (PerC Cys) on growth performance of mutton sheep

The results showed that coated cysteamine (PerC Cys) added into rations can make daily gain increase and make F/G decrease, by about 13-15%.

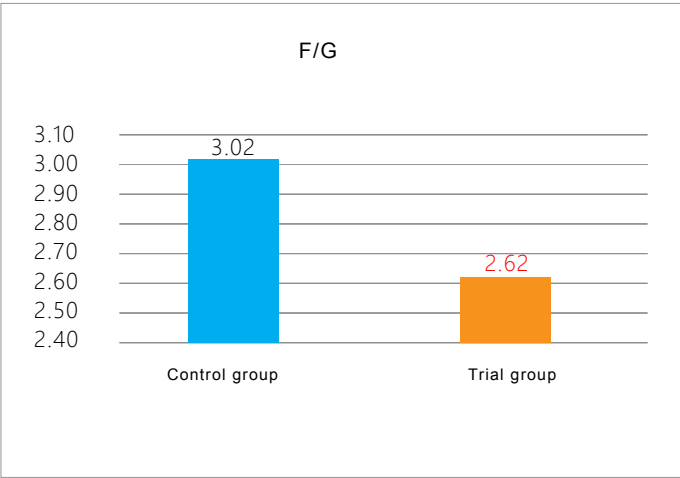


Figure. 10 Effects of coated cysteamine (PerC Cys) on F/G of mutton sheep

Usage & Dosage

| Species  | Per T complete feed （concentrated feed） allowed to add this product（ g / ton ） |
|--|--|
| Calves/Lamb  | 600-1000   |
| Fattening beef cattle/Fattening meat sheep   | 1000-2000  |
| Milk cow   | 2000   |
| Note: for ruminants, if the daily feed intake of concentrated feed accounts for 1.5% of body weight, it is recommended that dosage could be added by lower limit; if the daily feed intake of concentrated feed accounts for 1% of body weight, it is recommended that dosage could be added by upper limit. |  |

Note

Keep away from heat, moisture and direct sunlight, not with toxic and harmful substances mixed. This product is used as soon as possible after unpacking, the remaining parts need to tie up and keep in dark place.

Package

This product is packaged in a paper box, the net weight of product is 20kg, there are two bags in all, each is 10kg.

Shelf-period

Under the condition of original package, the shelf life is 12 months.