

NIH SPECIFICATION

Open Formula Laboratory Ungulate Diet

INGREDIENTS

Ingredients	Percentage by Weight
Wheat Middlings	30.25
Oats Grain 10%	7.00
Alfalfa Meal 17%	15.00
Oat Hulls	15.00
Corn, Yellow	14.40
Soybean Meal (49% protein)	10.00
Limestone	2.10
Molasses Cane	2.00
Soy Oil	.70
Salt	1.10
diCalcium Phosphate	.80
Vitamin Mix	.50
Mineral Mix	.50
Choline CL-70	.15
Ammonium Chloride	.50
Total	100.00

VITAMIN FORTIFICATION PER TON (2,000 LBS.) OF FINISHED PRODUCT

Vitamin	Amount	Source
A	13,620,000 IU	Stabilized Vitamin A palmitate or acetate
D ₃	1,180,000 IU	D activated animal sterol
K	1.8 g	Phylloquinone
dl alpha- tocopheryl acetate	36.3 g	
Folic Acid	1.6 g	
Pantothenic Acid	6.0 g	d-Calcium pantothenate
Pyridoxine	4.6 g	Pyridoxine hydrochloride
Riboflavin supplement	6.4 g	
Thiamin	6.4 g	Thiamin mono nitrate
B ₁₂ supplement	45,400.0 mcg	
Biotin	200.0 mg	

MINERAL FORTIFICATION PER TON (2,000 LBS.) OF FINISHED PRODUCT

Mineral	Amount	Source
Potassium	3,178 g	Potassium carbonate
Zinc	100 g	Zinc Oxide
Cobalt	386 mg	Cobalt carbonate

Mineral	Amount	Source
Iodine	454 mg	Calcium Iodate
Sulfur	908 g	Sodium Sulfate
Copper	2,724 mg	Copper Sulfate

These concentrations of vitamins and minerals shall be added to the ration via two separate (vitamin and mineral) premixes. The final formulation may be adjusted so the total amount of ingredients will equal 100%. In the case of the mineral fortification, the actual amount of each element required is specified. Therefore, the contractor shall adjust the amount of each compound used in the premix according to its mineral concentration.

NUTRIENT STANDARDS

Micro Analysis - The total calculated concentration of nutrients in the ration from ingredients and from the fortifications at the time of manufacture should be as follows:

Component	Measurement	Requirement	Amount
Crude protein	%	Minimum	14.5
Crude fat	%	Minimum	3.5
Crude fiber	%	Maximum	12.5

Amino Acids (% of total diet)	Minimum
Arginine	.80
Lysine	.60
Methionine	.18
Cystine	.17
Tryptophan	.20
Glycine	.55
Histidine	.30
Leucine	.90
Isoleucine	.67
Phenylalanine	.64
Tyrosine	.44
Threonine	.48
Valine	.69

Minerals	Measurement	Requirement	Amount
Calcium	%	Minimum	1.00
Phosphorous	%	Minimum	.50
Potassium	%	Minimum	1.20
Sodium	%	Minimum	.50
Sulfur	%	Minimum	.25
Magnesium	PPM	Minimum	.24
Iron	PPM	Minimum	100.00
Zinc	PPM	Minimum	100.00

Minerals	Measurement	Requirement	Amount
Manganese	PPM	Minimum	31.00
Copper	PPM	Minimum	10.00
Cobalt	PPM	Minimum	.50
Iodine	PPM	Minimum	.50
Selenium	PPM	Minimum	.30
Chlorine	PPM	Minimum	.70

Vitamins	Measurement	Requirement	Amount
Vitamin K	PPM	Minimum	2.00
Vitamin A	IU/g	Minimum	14.00 (7) ¹
Vitamin D	IU/g	Minimum	1.30
Alpha-tocopherol	PPM	Minimum	60.00
Thiamin	PPM	Minimum	12.00
Riboflavin	PPM	Minimum	10.00
Niacin	PPM	Minimum	30.00
Pantothenic Acid	PPM	Minimum	15.00
Choline	PPM	Minimum	1500.00
Pyridoxine	PPM	Minimum	7.00
Folic Acid	PPM	Minimum	3.00
Biotin	PPM	Minimum	.30
Vitamin B12	mcg/kg	Minimum	50.00

¹ True Vitamin A activity by HPLC method.