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
	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
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:

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

Calcium	%	Minimum	1.00
Phosphorous	%	"	.50
Potassium	%	"	1.20
Sodium	%	"	.50
Sulfur	%	"	.25
Magnesium	PPM	"	.24
Iron	PPM	"	100.00
Zinc	PPM	"	100.00
Manganese	PPM	"	31.00
Copper	PPM	"	10.00
Cobalt	PPM	"	.50
Iodine	PPM	"	.50
Selenium	PPM	"	.30
Chlorine	PPM	"	.70

Vitamins

Vitamin K	PPM	"	2.00
Vitamin A	IU/g	"	14.00 (7)*
Vitamin D	IU/g	"	1.30
Alpha-tocopherol	PPM	"	60.00
Thiamin	PPM	"	12.00
Riboflavin	PPM	"	10.00
Niacin	PPM	"	30.00
Pantothenic Acid	PPM	"	15.00
Choline	PPM	"	1500.00
Pyridoxine	PPM	"	7.00
Folic Acid	PPM	"	3.00
Biotin	PPM	"	.30
Vitamin B_{12}	mcg/kg	"	50.00

*TRUE VITAMIN A ACTIVITY BY HPLC METHOD