



MP Biomedicals, LLC

29525 Fountain Parkway  
Solon, Ohio 44139

Telephone: 440/337-1200

Toll Free: 800/854-0530

Fax: 440/337-1180

mailto: [biotech@mpbio.com](mailto:biotech@mpbio.com)

web: <http://www.mpbio.com>

## TECHNICAL INFORMATION

Catalog Number: 960396, 960397, 960398, 960399, 960400, 960401, 960402

### American Institute of Nutrition AIN-93 Diet

#### AIN-93 Purified Diets

For sixteen years, the American Institute of Nutrition Rodent Diets, AIN-76 and AIN-76A, have been used extensively around the world. Because of numerous nutritional and technical problems encountered with the diet during this period, it was revised. Two new formulations were derived: AIN-93G for growth, pregnancy, and lactation; and AIN-93M for adult maintenance. Some major differences in the new formulation of AIN-93G compared with AIN-76A are as follows:

7 grams soybean oil/100 grams diet was substituted for 5 grams corn oil/100 grams diet to increase the amount of linolenic acid; corn-starch was substituted for sucrose; the amount of phosphorus was reduced to help eliminate the problem of kidney calcification in female rats; L-cystine was substituted for DL-methionine as the amino acid supplement for casein, known to be deficient in the sulfur amino acids; manganese concentration was lowered to one fifth the amount in the old diet; the amounts of Vitamin E, Vitamin K, and Vitamin B<sub>12</sub> were increased; and molybdenum, silicon, fluoride, nickel, boron, lithium, and vanadium were added to the mineral mix. For the AIN-93M maintenance diet, the amount of fat was lowered to 40 g/kg diet from 70 g/kg diet, and the amount of casein to 140 g/kg from 200 g/kg in the AIN-93G diet. Because of a better balance of essential nutrients, the AIN-93 diets may prove to be a better choice than AIN-93A for long-term as well as short-term studies with laboratory rodents. *J. Nutr.*, v. **123**: 1939-1951 (1993).

#### Composition of the AIN-93M (For Maintenance of adult rodents):

Ingredient	Amount
Casein	14.0000%
Dextrinized Cornstarch	15.5%
Sucrose	10.0%
Corn Starch	46.5692%
Alphacel, Non-Nutritive Bulk	5.0%
Soybean Oil	4.0%
AIN-93M Mineral Mix	3.5%
L-Cystine	0.18%
AIN-93-VX Vitamin Mix	1.0%
Choline bitartrate	0.25%
tert-Butylhydroquinone	0.0008%

Due to the addition of dextrinized cornstarch replacing most of the sucrose in the AIN-76 diet, the pellets will be small.

#### Availability:

Catalog Number	Description	Size
960396	AIN-93 M Powdered	10 kg
		20 kg
		50 kg
960397	AIN-93 M Pelleted	10 kg
		20 kg
		50 kg

#### Composition of the AIN-93G (For growth, pregnancy, and lactational phases of rodents):

Ingredient	Amount
Casein	20.00%
Dextrinized Cornstarch	13.20%
Sucrose	10.0%
Corn Starch	39.7486%
Alphacel, Non-Nutritive Bulk	5.0%
Soybean Oil	7%
AIN-93G Mineral Mix	3.5%
L-Cystine	0.3%
AIN-93-VX Vitamin Mix	1.0%

Choline bitartrate	0.25%
tert-Butylhydroquinone	0.0014%

Due to the addition of dextrinized cornstarch replacing most of the sucrose in the AIN-76 diet, the pellets will be small.

**Availability:**

<i>Catalog Number</i>	<i>Description</i>	<i>Size</i>
960398	AIN-93 G Powdered	10 kg
		20 kg
		50 kg
960399	AIN-93 G Pelleted	10 kg
		20 kg
		50 kg

**Also Available:**

**AIN-93G Mineral Mix (For growth, pregnancy, and lactational phases of rodents. Not Available in Pellet Form):**

<b>Ingredient</b>	<b>Amount</b>
Calcium Carbonate	35.7%
Monopotassium phosphate	19.6%
Potassium Citrate monohydrate	7.078%
Sodium Chloride	7.4%
Potassium Sulfate	4.66%
Magnesium Oxide	2.4%
Ferric Citrate	0.606%
Zinc Carbonate	0.165%
Manganese Carbonate	0.063%
Copper Carbonate	0.03%
Potassium Iodate	0.001%
Sodium Selenate, Anhydrous	0.00103%
Ammonium Molybdate-4H <sub>2</sub> O	0.000795%
Sodium Metasilicate-9H <sub>2</sub> O	0.145%
Chromium Potassium Sulfate-12H <sub>2</sub> O	0.0275%
Lithium Chloride	0.00174%
Boric Acid	0.008145%
Sodium Fluoride	0.00635%
Nickel Carbonate	0.00318%
Ammonium Vanadate	0.00066%
Powdered Sugar	22.1%

**Availability:**

<i>Catalog Number</i>	<i>Description</i>	<i>Size</i>
960400	AIN-93 G Mineral Mix (MX) Powdered	2 kg
		10 kg
		50 kg

**AIN-93M Mineral Mix (For maintenance of adult rodents. Not Available in Pellet Form):**

<b>Ingredient</b>	<b>Amount</b>
Calcium Carbonate	35.7%
Monopotassium phosphate	25.0%
Potassium Citrate monohydrate	2.8%
Sodium Chloride	7.4%
Potassium Sulfate	4.66%
Magnesium Oxide	2.4%
Ferric Citrate	0.606%
Zinc Carbonate	0.165%
Manganese Carbonate	0.063%
Copper Carbonate	0.03%
Potassium Iodate	0.001%
Sodium Selenate, Anhydrous	0.001025%
Ammonium Molybdate-4H <sub>2</sub> O	0.000795%
Sodium Metasilicate-9H <sub>2</sub> O	0.145%
Chromium Potassium Sulfate-12H <sub>2</sub> O	0.0275%
Lithium Chloride	0.00174%
Boric Acid	0.00815%

Sodium Fluoride	0.00635%
Nickel Carbonate	0.00318%
Ammonium Vanadate	0.00066%
Powdered Sugar	20.9806%

**Availability:**

<i>Catalog Number</i>	<i>Description</i>	<i>Size</i>
960401	AIN-93 M Mineral Mix (MX) Powdered	2 kg 10 kg 50 kg

**AIN-93-VX Vitamin Mix (Not Available in Pellet Form):**

<b>Ingredient</b>	<b>Amount (gm/kg)</b>
Nicotinic Acid	3.00
D-Calcium Pantothenate	1.60
Pyridoxine HCl	0.70
Thiamine HCl	0.60
Riboflavin	0.60
Folic Acid	0.20
D-Biotin	0.02
Vitamin B <sub>12</sub> (0.1% triturated in mannitol)	2.50
a-Tocopherol Powder (250 U/gm)	30.00
Vitamin A Palmitate (250,000 U/gm)	1.60
Vitamin D <sub>3</sub> (400,000 U/gm)	0.25
Phylloquinone	0.075
Powdered Sucrose	959.655

**Availability:**

<i>Catalog Number</i>	<i>Description</i>	<i>Size</i>
960402	AIN-93-VX Vitamin Mix Powdered	1 kg 10 kg