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## HFP05 FORMULATION

### Ham's F-12 Medium

*With L-Glutamine. Without Sodium Bicarbonate. Store at 2° to 8°C.*

Components	mg/L
Linoleic Acid (C <sub>18</sub> H <sub>32</sub> O <sub>2</sub> )	0.088
Lipoic Acid (DL-Thioctic Acid) (C <sub>8</sub> H <sub>14</sub> O <sub>2</sub> S <sub>2</sub> )	0.210
D-Glucose, Anhydrous (C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> )	900.00
D-Biotin (C <sub>10</sub> H <sub>16</sub> N <sub>2</sub> O <sub>3</sub> S)	0.0073
Cupric Sulfate, Pentahydrate (CuSO <sub>4</sub> · 5H <sub>2</sub> O)	0.0025
Ferrous Sulfate, Heptahydrate (FeSO <sub>4</sub> · 7H <sub>2</sub> O)	0.8340
Folic Acid (C <sub>19</sub> H <sub>19</sub> N <sub>7</sub> O <sub>6</sub> )	1.3200
Niacinamide/Nicotinamide (C <sub>6</sub> H <sub>6</sub> N <sub>2</sub> O)	0.0370
Pyridoxine, Hydrochloride (C <sub>8</sub> H <sub>11</sub> NO <sub>3</sub> · HCl)	0.0620
D-Calcium Pantothenate (C <sub>18</sub> H <sub>32</sub> CaN <sub>2</sub> O <sub>10</sub> )	0.4800
Putrescine, Dihydrochloride (C <sub>4</sub> H <sub>12</sub> N <sub>2</sub> · 2HCl)	0.1600
Riboflavin (C <sub>17</sub> H <sub>20</sub> N <sub>4</sub> O <sub>6</sub> )	0.0380
Thiamine, Hydrochloride (C <sub>12</sub> H <sub>17</sub> ClN <sub>4</sub> OS · HCl)	0.3370
Thymidine (C <sub>10</sub> H <sub>14</sub> N <sub>2</sub> O <sub>5</sub> )	0.7300
Vitamin B12 (C <sub>63</sub> H <sub>88</sub> CoN <sub>14</sub> O <sub>14</sub> P)	1.3600
Zinc Sulfate, Heptahydrate (ZnSO <sub>4</sub> · 7H <sub>2</sub> O)	0.8630
L-Arginine, Hydrochloride (C <sub>6</sub> H <sub>14</sub> N <sub>4</sub> O <sub>2</sub> · HCl)	211.00
L-Aspartic Acid (C <sub>4</sub> H <sub>7</sub> NO <sub>4</sub> )	13.30
L-Asparagine, Monohydrate (C <sub>4</sub> H <sub>8</sub> N <sub>2</sub> O <sub>3</sub> · H <sub>2</sub> O)	15.00
L-Alanine (C <sub>3</sub> H <sub>7</sub> NO <sub>2</sub> )	8.90
L-Cysteine, hydrochloride, Monohydrate (C <sub>3</sub> H <sub>7</sub> NO <sub>2</sub> · HCl · H <sub>2</sub> O)	35.12
Glycine (C <sub>2</sub> H <sub>5</sub> NO <sub>2</sub> )	7.50
L-Glutamic Acid (C <sub>5</sub> H <sub>9</sub> NO <sub>4</sub> )	14.70
L-Histidine, Hydrochloride, Monohydrate (C <sub>6</sub> H <sub>9</sub> N <sub>3</sub> O <sub>2</sub> · HCl · H <sub>2</sub> O)	20.96
L-Isoleucine (C <sub>6</sub> H <sub>13</sub> NO <sub>2</sub> )	3.94
L-Leucine (C <sub>6</sub> H <sub>13</sub> NO <sub>2</sub> )	13.10
L-Lysine, Hydrochloride (C <sub>6</sub> H <sub>14</sub> N <sub>2</sub> O <sub>2</sub> · HCl)	36.50
L-Methionine (C <sub>5</sub> H <sub>11</sub> NO <sub>2</sub> S)	4.48
L-Proline (C <sub>5</sub> H <sub>9</sub> NO <sub>2</sub> )	34.50
L-Phenylalanine (C <sub>9</sub> H <sub>11</sub> NO <sub>2</sub> )	4.96



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L-Serine (C <sub>3</sub> H <sub>7</sub> NO <sub>3</sub> )	10.50
L-Threonine (C <sub>4</sub> H <sub>9</sub> NO <sub>3</sub> )	11.90
L-Tryptophan (C <sub>11</sub> H <sub>12</sub> N <sub>2</sub> O <sub>2</sub> )	2.04
L-Tyrosine, Disodium, Dihydrate (C <sub>9</sub> H <sub>9</sub> O <sub>3</sub> Na <sub>2</sub> · 2H <sub>2</sub> O)	7.840
L-Valine (C <sub>5</sub> H <sub>11</sub> NO <sub>2</sub> )	11.70
Calcium Chloride, Anhydrous (CaCl <sub>2</sub> )	33.30
Potassium Chloride (KCl)	223.60
Sodium Chloride (NaCl)	7599.00
Sodium Phosphate Dibasic, Anhydrous (Na <sub>2</sub> HPO <sub>4</sub> )	142.00
Choline Chloride (C <sub>5</sub> H <sub>14</sub> ONCl)	13.96
Hypoxanthine Sodium (C <sub>5</sub> H <sub>4</sub> N <sub>4</sub> NaO)	4.77
Myo-Inositol (C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> )	18.02
Pyruvic Acid, Sodium Salt (C <sub>3</sub> H <sub>3</sub> NaO <sub>3</sub> )	110.00
L-Glutamine (C <sub>5</sub> H <sub>10</sub> N <sub>2</sub> O <sub>3</sub> )	146.20
D-Glucose, Anhydrous (C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> )	902.00
Magnesium Chloride, Anhydrous (MgCl <sub>2</sub> )	57.22
Phenol Red Sodium Salt (C <sub>19</sub> H <sub>13</sub> NaO <sub>5</sub> S)	1.200