

**MIR016 AMINO ACIDS**  
**A MARKET INSIGHT REPORT– July 2010**  
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Major Companies in Asia-Pacific

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CJ Corporation (South Korea)

Daesang Corporation (South Korea)

Daiichi Pure Chemicals Co., Ltd. (Japan)

Kyowa Hakko Kogyo Co., Ltd. (Japan)

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Lysine

Growth Trends – Global Market for Lysine

Exhibit 133: Global Market for Lysine: Geographic Regions (North America, Europe, Latin America, \*Asia-Pacific, China and Rest of World) Ranked by projected CAGR for 2000 through 2013 (*Graphical Representation Included*)

L-Lysine

Fermentation of Lysine

Role of Lysine

Deficiency Symptoms

Supplementation

### **Branched Chain Amino Acids (Isoleucine, Leucine, Valine)**

Growth Trends – Global Market for BCAA (Isoleucine, Leucine, Valine)

Exhibit 134: Global Market for BCAA (Isoleucine, Leucine, Valine): Geographic Regions (Latin America, Europe, North America, \*Asia-Pacific, China and Rest of World) Ranked by projected CAGR for 2000 through 2013 (*Graphical Representation Included*)

Branched Chain Amino Acids

BCAA - Application in Athletes

Variations in Protein Synthesis using BCAA's during the course of Exercises Sessions

An enhanced System for Better Exercise Performance from BCAA's is Inhibition of CNS Fatigue

Requirements of BCAA Supplements

Various Other Effects Caused by BCAA's

Valine

Deficiency of Valine

Dosage

Isoleucine

Deficiency of Isoleucine

Leucine

Uses of Leucine

Deficiency of Leucine

Role of Leucine in Protein Synthesis

### **Phenylalanine**

Growth Trends – Global Market for Phenylalanine

Exhibit 135: Global Market for Phenylalanine: Geographic Regions (North America, Europe, Latin America, \*Asia-Pacific, China and Rest of World) Ranked by projected CAGR for 2000 through 2013 (*Graphical Representation Included*)

Phenylalanine

Uses of Phenylalanine

Deficiency of Phenylalanine

Dosage

Symptoms of High Dosage

High Dose Requirements

### **Other**

Growth Trends – Global Market for Other

Exhibit 136: Global Market for Other: Geographic Regions (North America, Europe, \*Asia-Pacific, Latin America, China and Rest of World) Ranked by projected CAGR for 2000 through 2013 (*Graphical Representation Included*)

Arginine

Glycine

Cysteine

Uses of Cysteine

Skin

Body Detoxification

Strengthening of the Stomach and Intestines

Metabolism of Biochemicals

Dosage

Cystine

Uses of Cystine

Deficiency of Cystine

Histidine

Uses of Histidine

Dosage  
Serine  
Uses of Serine  
Alanine  
Uses of Alanine  
Dosage  
Threonine  
Role  
Deficiency Symptoms  
Supplementation  
Tryptophan  
Role  
Deficiency Symptoms  
Supplementation  
Proline  
Role  
Supplementation  
Tyrosine  
Role  
Deficiency Symptoms  
Supplementation

### **Segmentation by Application**

Growth Trends – Global Market for Amino Acids by Application

Exhibit 137: Global Market for Amino Acids by Application (Feed Additives, Nutraceutical/ Pharmaceutical, Food Ingredients and \*Other) Ranked by Projected CAGR for 2000 through 2013 (*Graphical Representation Included*)

### **Feed Additives**

Growth Trends – Global Market for Amino Acids in Feed Additives

Exhibit 138: Global Market for Amino Acids in Feed Additives: Geographic Regions (North America, Europe, Latin America, \*Asia-Pacific, China and Rest of World) Ranked by Projected CAGR for 2000 through 2013 (*Graphical Representation Included*)

Amino Acids in Animal Nutrition

### **Food Ingredients**

Growth Trends – Global Market for Amino Acids in Food Ingredients

Exhibit 139: Global Market for Amino Acids in Food Ingredients: Geographic Regions (Europe, North America, Latin America, \*Asia-Pacific, China and Rest of World) Ranked by Projected CAGR for 2000 through 2013 (*Graphical Representation Included*)

Monosodium Glutamate

MSG-Industrial Production Process

Aspartame

Applications

Disadvantages

Adverse Affects

Aspartame Toxicity

### **Nutraceutical/Pharmaceutical**

Growth Trends – Global Market for Amino Acids in Nutraceutical/ Pharmaceutical

Exhibit 140: Global Market for Amino Acids in Nutraceutical/Pharmaceutical: Geographic Regions (Europe, North America, Latin America, \*Asia-Pacific, China and Rest of World) Ranked by Projected CAGR for 2000 through 2013 (*Graphical Representation Included*)

### **Other**

Growth Trends – Global Market for Amino Acids in Other  
Exhibit 141: Global Market Amino Acids in Other: Geographic Regions (North America, Europe, Latin America, \*Asia-Pacific, China and Rest of World) Ranked by Projected CAGR for 2000 through 2013 (*Graphical Representation Included*)  
Anti-aging Effect of Amino Acids  
Amino Acids in Cosmetology  
Amino Acids and Environment  
Amino Acid Supplements  
Exhibit 142: List of Essential Amino Acids, their Food Source, Minimal requirement, Recommended Dietary Allowance, Toxicity Symptoms and patients who should Avoid High Dosage of Amino Acids  
Exhibit 143: List of Non-Essential Amino Acids, their Food Source and patients who should Avoid High Dosage of Amino Acids  
Detection of Deficiency of Amino Acids and Precautions  
Therapeutic Uses of Amino Acids  
Arginine  
Histidine  
Isoleucine  
Leucine  
Lysine  
Methionine  
Phenylalanine  
Threonine  
Tryptophan  
Valine  
Proline  
Taurine  
Glutamic Acid  
Glutamine  
Cysteine and Cystine  
Glycine  
Alanine  
b-Alanine  
Gama Aminobutyric Acid (GABA)  
Asparagine and Aspartic Acid  
Citrulline  
Ornithine  
Serine  
Glutathione  
Commercial Uses of Amino Acids  
Ethical Issues/Controversies  
cGMP - the basis for 21CFR Part 11  
21 CFR Part 11 Software Requirements  
Commercial Feed Regulations (Washington State Department of Agriculture)  
Definition of Commercial Feed  
Commercial Fed License Requirements  
Pet Food and Specialty Pet Food Label Registration Requirements  
Tonnage Report and Inspection Fee Payment Requirements  
Regulations for Feed Additives in Europe  
Act  
Summary  
Scope  
Authorization Procedure  
Information on Additives

Background  
Key Terms used in the Act  
Regulations on Administration of Animal Feed and Feed Additives in China  
Chapter I General Provisions  
Chapter II Evaluation and Import Administration  
Chapter III Administration of Production, Operation and Use  
Chapter IV Penalty Provisions  
Chapter V Supplementary Provisions  
The Regulation for Food Nutrition Labeling (China -2007)  
General Provisions  
Labeling Practice for Food Nutrition Label  
I Terms and Definition  
A. Food and Food Composition  
Table1: Energy Conversion Coefficient of Nutrients in Food  
Table 2: Nitrogen Conversion Coefficients for Different Foods  
B. Value and Rounding  
C. Effective Numeral  
D. Designated Numeral  
E. Rounding Increment.  
II Analysis of Nutrition Component  
III Labeling of Food Nutrition Component  
IV Expression of Nutrition Component Value  
V Allowable Variation of Indicated Numerical Value  
VI Recommended Format for Nutrition Labeling  
1 Basic Format  
2 Basic Format with Nutrient Reference Value  
3 Format with Nutrition Claim  
4 Format with English  
5 Horizontal Format  
Guidance for Nutrition and Health Claims  
I Definition  
II Basic Principles  
III Nutrition Claim  
IV Health claim  
Nutrient Reference Value for Food Labeling in China  
I Definition  
II Scope of Application  
III Forms of Application  
IV NRV  
V Labeling and Calculation  
Japan's Pharmaceutical Affairs Law (PAL)  
Introduction  
Preparing for the Inspection Process  
**IV. MARKET DYNAMICS**  
**1. Market Overview**  
Market Growth Factors  
Competition Analysis  
Exhibit 144: Major Companies and their Annual Production Capacities in  
Thousand Metric Tons (2006)  
Price Trends  
Exhibit 145: Average Prices of Imported Lysine in China (Yuan/kg)  
Exhibit 146: Average Prices of Domestic Lysine (98.5%) (Yuan/kg)  
Exhibit 147: Average Transaction Price of Methionine in China (Yuan/kg)

### **Global Market Analysis**

Exhibit 148: Amino Acids (2000-2013) – Global Market Analysis (Historic, Current & Future) by Geographic Region for North America, Europe, China, \*Asia-Pacific, Latin America and Rest of World in US\$ Billion (*Graphical Representation Included*)

Exhibit 149: Amino Acids (2006, 2009 and 2013) – Percentage Breakdown of Global Market Value by Geographic Region for North America, Europe, China, \*Asia-Pacific, Latin America and Rest of World (*Graphical Representation Included*)

Exhibit 150: Amino Acids (2000-2013) – Global Volume Analysis (Historic, Current & Future) by Geographic Region for North America, Europe, China, \*Asia-Pacific, Latin America and Rest of World in Thousand Metric Tons (*Graphical Representation Included*)

Exhibit 151: Amino Acids (2006, 2009 and 2013) – Percentage Breakdown of Global Volume by Geographic Region for North America, Europe, China, \*Asia-Pacific, Latin America and Rest of World (*Graphical Representation Included*)

### **Global Demand Analysis**

Exhibit 152: Amino Acids (2000-2013) – Global Demand Analysis in US\$ Billion and in Million Lbs (*Graphical Representation Included*)

### **Analysis by Type**

Exhibit 153: Amino Acids (2000-2013) – Global Market Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in US\$ Million (*Graphical Representation Included*)

Exhibit 154: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Global Market Value by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other (*Graphical Representation Included*)

Exhibit 155: Amino Acids (2000-2013) – Global Volume Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in Thousand Metric Tons (*Graphical Representation Included*)

Exhibit 156: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Global Volume by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other (*Graphical Representation Included*)

### **Analysis by Type**

Exhibit 157: Amino Acids (2000-2013) – Global Demand Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Phenylalanine and Other in US\$ Billion (*Graphical Representation Included*)

Exhibit 158: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Global Demand by Type for Glutamate, Methionine, Lysine, Phenylalanine and Other (*Graphical Representation Included*)

### **Analysis by Application**

Exhibit 159: Amino Acids (2000-2013) – Global Market Analysis (Historic, Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other in US\$ Million (*Graphical Representation Included*)

Exhibit 160: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Global Market Value by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other (*Graphical Representation Included*)

Exhibit 161: Application, Method of Production and Quantity of Amino Acids Produced (2006) in Tons/Year

Exhibit 162: Amino Acids (2000-2013) – Global Consumption (Historic, Current & Future) for Monosodium Glutamate in Million Metric Tons (*Graphical Representation Included*)

Exhibit 163: Amino Acids (2000-2013) – Global Market Analysis (Historic, Current & Future) for Synthesis in US\$ Million (*Graphical Representation Included*)

## **2. Major Global Companies in Amino Acids Industry**

Ajinomoto Co., Inc. (Japan)  
Archer Daniels Midland Co. (USA)  
CJ Corporation (South Korea)  
Daesang Corporation (South Korea)  
Daiichi Pure Chemicals Co., Ltd. (Japan)  
Evonik Degussa GmbH (Germany)  
Global Biochem Technology Group Co., Ltd. (China)  
Koninklijke DSM NV (The Netherlands)  
Kyowa Hakko Kogyo Co., Ltd. (Japan)  
Novus International, Inc. (USA)  
Vedan (Vietnam) Enterprise Corp. Ltd. (Vietnam)  
More.....

### **3. Major Activities in Amino Acids Industry**

#### **4. Regional Market Analysis**

##### **A. North America**

###### **Analysis by Geographic Region**

Exhibit 164: Amino Acids (2000-2013) – North American Market Analysis (Historic, Current & Future) by Geographic Region for the United States and Canada in US\$ Million (*Graphical Representation Included*)

Exhibit 165: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of North American Market Value by Geographic Region for the United States and Canada (*Graphical Representation Included*)

###### **Analysis by Type**

Exhibit 166: Amino Acids (2000-2013) – North American Market Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in US\$ Million (*Graphical Representation Included*)

Exhibit 167: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of North American Market Value by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other (*Graphical Representation Included*)

Exhibit 168: Amino Acids (2000-2013) – North American Volume Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in Thousand Metric Tons (*Graphical Representation Included*)

Exhibit 169: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of North American Volume by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other (*Graphical Representation Included*)

###### **Analysis by Application**

Exhibit 170: Amino Acids (2000-2013) – North American Market Analysis (Historic, Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other in US\$ Million (*Graphical Representation Included*)

Exhibit 171: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of North American Market Value by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other (*Graphical Representation Included*)

Competitor Companies in North America

Abbott Nutrition (USA)  
Accurate Chemical & Scientific Corporation (USA)  
Aceto Corporation (USA)  
Affymax, Inc. (USA)  
AIE Pharmaceuticals, Inc. (USA)  
Aims Fine Chemicals, Inc. (Canada)  
Ajinomoto AminoScience LLC (USA)  
Ajinomoto Heartland LLC (USA)

Albion Advanced Nutrition (USA)  
AnaSpec, Inc. (USA)  
Arkema, Inc. (USA)  
Baicor LC (USA)  
Baxter International, Inc. (USA)  
Cactus Biotech Inc. (USA)  
Cargill, Inc. (USA)  
Davisco Foods International, Inc. (USA)  
Hospira, Inc. (USA)  
Jo Mar Laboratories (USA)  
Kirkman Laboratories, Inc. (USA)  
Kyowa Hakko USA, Inc. (USA)  
LC Sciences (USA)  
McTONY Bio&Chem, Inc. (Canada)  
Natrol, Inc. (USA)  
New England Peptide LLC (USA)  
Now ® Foods (USA)  
Pat Vitamins, Inc. (USA)  
Pharmline, Inc. (USA)  
RegeneRx Biopharmaceuticals, Inc. (USA)  
RSP Amino Acids LLC (USA)  
Suzanne's Natural Foods (USA)  
Thallion Pharmaceuticals, Inc. (Canada)  
Toronto Research Chemicals, Inc. (Canada)  
Universal Nutrition (USA)  
Varsal, Inc. (USA)  
Vaxa International (USA)  
Vitabase (USA)  
Vitamin Research Products (USA)

#### **A1. United States**

Exhibit 172: Amino Acids (2000-2013) – The United States Demand Analysis  
(Historic, Current & Future) in US\$ Million (*Graphical Representation Included*)

#### **Analysis by Type**

Exhibit 173: Amino Acids (2000-2013) – The United States Market Analysis (Historic,  
Current & Future) by Type for Glutamate, Methionine, Lysine,  
Branched Chain Amino Acids, Phenylalanine and \*Other in US\$ Million  
(*Graphical Representation Included*)

Exhibit 174: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of the  
United States Market Value by Type for Glutamate, Methionine, Lysine,  
Branched Chain Amino Acids, Phenylalanine and \*Other  
(*Graphical Representation Included*)

#### **Analysis by Application**

Exhibit 175: Amino Acids (2000-2013) – The United States Market Analysis (Historic,  
Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/  
Pharmaceutical and \*Other in US\$ Million (*Graphical Representation Included*)

Exhibit 176: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of the  
United States Market Value by Application for Feed Additives, Food Ingredients,  
Nutraceutical/Pharmaceutical and \*Other (*Graphical Representation Included*)

Exhibit 177: Amino Acids (2000-2013) – The United States Feed Additive Demand Analysis  
(Historic, Current & Future) for Methionine, Lysine, Threonine, Tryptophan and  
Other in US\$ Million (*Graphical Representation Included*)

Exhibit 178: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of the United States Feed Additive Demand for Methionine, Lysine, Threonine, Tryptophan and Other *(Graphical Representation Included)*

## **A2. Canada**

### **Analysis by Type**

Exhibit 179: Amino Acids (2000-2013) – Canadian Market Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in US\$ Million *(Graphical Representation Included)*

Exhibit 180: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Canadian Market Value by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other *(Graphical Representation Included)*

### **Analysis by Application**

Exhibit 181: Amino Acids (2000-2013) – Canadian Market Analysis (Historic, Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other in US\$ Million *(Graphical Representation Included)*

Exhibit 182: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Canadian Market Value by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other *(Graphical Representation Included)*

## **B. Europe**

### **Analysis by Geographic Region**

Exhibit 183: Amino Acids (2000-2013) – European Market Analysis (Historic, Current & Future) by Geographic Region for Germany, United Kingdom, Switzerland, The Netherlands and Rest of Europe in US\$ Million *(Graphical Representation Included)*

Exhibit 184: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of European Market Value by Geographic Region for Germany, United Kingdom, Switzerland, The Netherlands and Rest of Europe *(Graphical Representation Included)*

### **Analysis by Type**

Exhibit 185: Amino Acids (2000-2013) – European Market Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in US\$ Million *(Graphical Representation Included)*

Exhibit 186: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of European Market Value by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other *(Graphical Representation Included)*

Exhibit 188: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of European Volume by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other *(Graphical Representation Included)*

### **Analysis by Application**

Exhibit 189: Amino Acids (2000-2013) – European Market Analysis (Historic, Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other in US\$ Million *(Graphical Representation Included)*

Exhibit 190: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of European Market Value by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other *(Graphical Representation Included)*

Competitor Companies in Europe  
AMINO GmbH (Germany)  
Alfredo Inesta SL (Spain)  
Bachem AG (Switzerland)  
Melford Laboratories Limited (UK)  
Merck KGaA (Germany)  
Tate & Lyle plc (UK)  
Tessenderlo Group (Belgium)

## **B1. Germany**

### **Analysis by Type**

Exhibit 191: Amino Acids (2000-2013) – German Market Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in US\$ Million  
*(Graphical Representation Included)*

Exhibit 192: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of German Market Value by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other *(Graphical Representation Included)*

### **Analysis by Application**

Exhibit 193: Amino Acids (2000-2013) – German Market Analysis (Historic, Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other in US\$ Million  
*(Graphical Representation Included)*

Exhibit 194: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of German Market Value by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other *(Graphical Representation Included)*

## **B2. United Kingdom**

### **Analysis by Type**

Exhibit 195: Amino Acids (2000-2013) – The United Kingdom Market Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in US\$ Million *(Graphical Representation Included)*

Exhibit 196: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of the United Kingdom Market Value by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other *(Graphical Representation Included)*

### **Analysis by Application**

Exhibit 197: Amino Acids (2000-2013) – United Kingdom Market Analysis (Historic, Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other in US\$ Million *(Graphical Representation Included)*

Exhibit 198: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of United Kingdom Market Value by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other *(Graphical Representation Included)*

## **B3. Switzerland**

### **Analysis by Type**

Exhibit 199: Amino Acids (2000-2013) – Swiss Market Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in US\$ Million *(Graphical Representation Included)*

Exhibit 200: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Swiss

Market Value by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other (*Graphical Representation Included*)

#### **Analysis by Application**

Exhibit 201: Amino Acids (2000-2013) – Swiss Market Analysis (Historic, Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other in US\$ Million (*Graphical Representation Included*)

Exhibit 202: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Swiss Market Value by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other (*Graphical Representation Included*)

#### **B4. The Netherlands**

##### **Analysis by Type**

Exhibit 203: Amino Acids (2000-2013) – The Netherlands Market Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in US\$ Million (*Graphical Representation Included*)

Exhibit 204: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of The Netherlands Market Value by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other (*Graphical Representation Included*)

##### **Analysis by Application**

Exhibit 205: Amino Acids (2000-2013) – The Netherlands Market Analysis (Historic, Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other in US\$ Million (*Graphical Representation Included*)

Exhibit 206: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of The Netherlands Market Value by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other (*Graphical Representation Included*)

#### **B5. Rest of Europe**

##### **Analysis by Type**

Exhibit 207: Amino Acids (2000-2013) – Rest of Europe Market Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in US\$ Million (*Graphical Representation Included*)

Exhibit 208: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Rest of Europe Market Value by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other (*Graphical Representation Included*)

##### **Analysis by Application**

Exhibit 209: Amino Acids (2000-2013) – Rest of Europe Market Analysis (Historic, Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other in US\$ Million (*Graphical Representation Included*)

Exhibit 210: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Rest of Europe Market Value by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other (*Graphical Representation Included*)

#### **C. China**

Exhibit 211: Amino Acids (2000-2013) – Chinese Market Analysis (Historic, Current & Future) in US\$ Billion (*Graphical Representation Included*)

Exhibit 212: Amino Acids (2000-2013) – Chinese Demand Analysis (Historic, Current & Future) for Lysine, Glycine and Phenylalanine in Thousand Metric Tons

##### **Analysis by Type**

Exhibit 213: Amino Acids (2000-2013) – Chinese Market Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in US\$ Million (*Graphical Representation Included*)

Exhibit 214: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Chinese Market Value by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other (*Graphical Representation Included*)

Exhibit 215: Amino Acids (2000-2013) – Chinese Volume Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in Thousand Metric Tons (*Graphical Representation Included*)

Exhibit 216: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Chinese Volume by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other (*Graphical Representation Included*)

#### **Analysis by Application**

Exhibit 217: Amino Acids (2000-2013) – Chinese Market Analysis (Historic, Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other in US\$ Million (*Graphical Representation Included*)

Exhibit 218: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Chinese Market Value by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other (*Graphical Representation Included*)

Competitor Companies in China

Changzhou Weiqiang Chemical Co., Ltd.

Degussa Cathay Biotechnology Co., Ltd.

Donboo Amino Acid Co., Ltd.

GL Biochem (Shanghai) Ltd.

Great Dragon Biochemicals Co., Ltd.

Guangzhou Baiyunshan Pharmaceutical Co., Ltd.

Hebei Meihua Monosodium Glutamate Group Co., Ltd.

Henan Lianhua Monosodium Glutamate Co., Ltd.

Hi-Tech Biochemicals Co., Ltd.

Hitrox Biosciences Co., Ltd.

Hubei Baofeng Bio-chemical Co., Ltd.

Ingredient China Group Ltd.

Jinzhou Jirong Amino Acid Co., Ltd.

Ningbo Zhenhai Haide Biochem Co., Ltd.

Shandong Qilu Monosodium Glutamate Group Co., Ltd.

Shandong Fufeng Fermentation Co., Ltd.

Sino-Swed Pharmaceutical Corp., Ltd.

Ve Wong Corp.

Wuhan Amino Acid Bio-Chemical Co., Ltd.

Wuhan Buyour Amino Acid Co., Ltd.

Wuhan University Hoyo Co., Ltd.

#### **D. Asia-Pacific**

##### **Analysis by Geographic Region**

Exhibit 219: Amino Acids (2000-2013) –Asia-Pacific Market Analysis (Historic, Current & Future) by Geographic Region for Japan, South Korea, India and Rest of Asia-Pacific in US\$ Million (*Graphical Representation Included*)

Exhibit 220: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Asia-Pacific Market Value by Geographic Region for Japan, South Korea, India and Rest of Asia-Pacific (*Graphical Representation Included*)

### **Analysis by Type**

Exhibit 221: Amino Acids (2000-2013) – Asia-Pacific Market Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in US\$ Million (*Graphical Representation Included*)

Exhibit 222: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Asia-Pacific Market Value by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other (*Graphical Representation Included*)

Exhibit 223: Amino Acids (2000-2013) – Asia-Pacific Volume Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in Thousand Metric Tons (*Graphical Representation Included*)

Exhibit 224: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Asia-Pacific Volume by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other (*Graphical Representation Included*)

### **Analysis by Application**

Exhibit 225: Amino Acids (2000-2013) – Asia-Pacific Market Analysis (Historic, Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other in US\$ Million (*Graphical Representation Included*)

Exhibit 226: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Asia-Pacific Market Value by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other (*Graphical Representation Included*)

Competitor Companies in Asia-Pacific

Amit Biotech (India)

Asahi Kasei Corporation (Japan)

Divis Laboratories Ltd. (India)

Hexagon Group (India)

Molchemie Overseas Operations (India)

Otsuka Pharmaceutical Co., Ltd. (Japan)

Priya Chemicals (India)

Shreenath Chemicals (India)

Sisco Research Laboratories Pvt., Ltd. (India)

Sumitomo Chemical Co., Ltd. (Japan)

Takeda Pharmaceutical Co., Ltd. (Japan)

Yoneyama Yakuhin Kogyo Co., Ltd. (Japan)

## **D1. Japan**

### **Analysis by Type**

Exhibit 227: Amino Acids (2000-2013) – Japanese Market Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in US\$ Million (*Graphical Representation Included*)

Exhibit 228: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Japanese Market Value by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other (*Graphical Representation Included*)

### **Analysis by Application**

Exhibit 229: Amino Acids (2000-2013) – Japanese Market Analysis (Historic, Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other in US\$ Million (*Graphical Representation Included*)

Exhibit 230: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Japanese Market Value by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other (*Graphical Representation Included*)

## **D2. South Korea**

### **Analysis by Type**

Exhibit 231: Amino Acids (2000-2013) – South Korean Market Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in US\$ Million *(Graphical Representation Included)*

Exhibit 232: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of South Korean Market Value by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other *(Graphical Representation Included)*

### **Analysis by Application**

Exhibit 233: Amino Acids (2000-2013) – South Korean Market Analysis (Historic, Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other in US\$ Million *(Graphical Representation Included)*

Exhibit 234: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of South Korean Market Value by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other *(Graphical Representation Included)*

## **D3. India**

### **Analysis by Type**

Exhibit 235: Amino Acids (2000-2013) – Indian Market Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in US\$ Million *(Graphical Representation Included)*

Exhibit 236: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Indian Market Value by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other

### **Analysis by Application**

Exhibit 237: Amino Acids (2000-2013) – Indian Market Analysis (Historic, Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other in US\$ Million *(Graphical Representation Included)*

Exhibit 238: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Indian Market Value by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other *(Graphical Representation Included)*

## **D4. Rest of Asia-Pacific**

### **Analysis by Type**

Exhibit 239: Amino Acids (2000-2013) – Rest of Asia-Pacific Market Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in US\$ Million *(Graphical Representation Included)*

Exhibit 240: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Rest of Asia-Pacific Market Value by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other *(Graphical Representation Included)*

### **Analysis by Application**

Exhibit 241: Amino Acids (2000-2013) – Rest of Asia-Pacific Market Analysis (Historic, Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other in US\$ Million

*(Graphical Representation Included)*

Exhibit 242: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Rest of Asia-Pacific Market Value by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other *(Graphical Representation Included)*

## **E. Latin America**

### **Analysis by Geographic Region**

Exhibit 243: Amino Acids (2000-2013) – Latin American Market Analysis (Historic, Current & Future) by Geographic Region for Brazil, Mexico and Rest of Latin America in US\$ Million *(Graphical Representation Included)*

Exhibit 244: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Latin American Market Value by Geographic Region for Brazil, Mexico and Rest of Latin America *(Graphical Representation Included)*

### **Analysis by Type**

Exhibit 245: Amino Acids (2000-2013) – Latin American Market Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in US\$ Million *(Graphical Representation Included)*

Exhibit 246: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Latin American Market Value by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other *(Graphical Representation Included)*

Exhibit 247: Amino Acids (2000-2013) – Latin American Volume Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in Thousand Metric Tons *(Graphical Representation Included)*

Exhibit 248: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Latin American Volume by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other *(Graphical Representation Included)*

Exhibit 249: Amino Acids (2000-2013) – Latin American Volume Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in Thousand Metric Tons *(Graphical Representation Included)*

Exhibit 250: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Latin American Volume by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other *(Graphical Representation Included)*

### **Analysis by Application**

Exhibit 251: Amino Acids (2000-2013) – Latin American Market Analysis (Historic, Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other in US\$ Million *(Graphical Representation Included)*

Exhibit 252: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Latin American Market Value by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other *(Graphical Representation Included)*

Competitor Companies in Latin America

Helm De Mexico SA (Brazil)

Probiotica Laboratories Ltd. (Mexico)

## **E1. Brazil**

### **Analysis by Type**

Exhibit 253: Amino Acids (2000-2013) – Brazilian Market Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and Other in US\$ Million (*Graphical Representation Included*)

Exhibit 254: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Brazilian Market Value by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other (*Graphical Representation Included*)

### **Analysis by Application**

Exhibit 255: Amino Acids (2000-2013) – Brazilian Market Analysis (Historic, Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other in US\$ Million (*Graphical Representation Included*)

Exhibit 256: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Brazilian Market Value by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other

## **E2. Mexico**

### **Analysis by Type**

Exhibit 257: Amino Acids (2000-2013) – Mexican Market Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in US\$ Million (*Graphical Representation Included*)

Exhibit 258: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Mexican Market Value by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other (*Graphical Representation Included*)

### **Analysis by Application**

Exhibit 259: Amino Acids (2000-2013) – Mexican Market Analysis (Historic, Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other in US\$ Million (*Graphical Representation Included*)

Exhibit 260: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Mexican Market Value by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other (*Graphical Representation Included*)

## **E3. Rest of Latin America**

### **Analysis by Type**

Exhibit 261: Amino Acids (2000-2013) – Rest of Latin America Market Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and Other in US\$ Million (*Graphical Representation Included*)

Exhibit 262: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Rest of Latin America Market Value by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and Other (*Graphical Representation Included*)

### **Analysis by Application**

Exhibit 263: Amino Acids (2000-2013) – Rest of Latin America Market Analysis (Historic, Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and Other in US\$ Million (*Graphical Representation Included*)

Exhibit 264: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Rest of Latin America Market Value by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and Other (*Graphical Representation Included*)

## **F. Rest of World**

Exhibit 265: Amino Acids (2000-2013) – Rest of World Market Analysis (Historic, Current & Future) in US\$ Million *(Graphical Representation Included)*

### **Analysis by Type**

Exhibit 266: Amino Acids (2000-2013) – Rest of World Market Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in US\$ Million  
*(Graphical Representation Included)*

Exhibit 267: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Rest of World Market Value by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other  
*(Graphical Representation Included)*

Exhibit 268: Amino Acids (2000-2013) – Rest of World Volume Analysis (Historic, Current & Future) by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other in Thousand Metric Tons  
*(Graphical Representation Included)*

Exhibit 269: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Rest of World Volume by Type for Glutamate, Methionine, Lysine, Branched Chain Amino Acids, Phenylalanine and \*Other *(Graphical Representation Included)*

### **Analysis by Application**

Exhibit 270: Amino Acids (2000-2013) – Rest of World Market Analysis (Historic, Current & Future) by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other in US\$ Million *(Graphical Representation Included)*

Exhibit 271: Amino Acids (2000, 2006 and 2013) – Percentage Breakdown of Rest of World Market Value by Application for Feed Additives, Food Ingredients, Nutraceutical/Pharmaceutical and \*Other *(Graphical Representation Included)*

## **5. Amino Acids - Industry Outlook**

## **IV. CORPORATE DIRECTORY**