SolvPro® – FAO/WHO Amino Acid Reference Standards

Amino Acid (g/100 g)	2007 Reference Standard Infants (birth-6 months)	2007 Reference Standard Infants (6-12 months)	2007 Reference Standard (1-2 yr olds)	1985/1991 Reference Standard (2-5 yr olds)**	1991 Reference Standard (3-10 yr olds)	1991 Reference Standard (10-18 yr olds)	2007 Reference Standard Adults (>18 Years)	2013 DIAAS Reference Standard
Histidine*	29.00	26.00	19.00	19.00	18.00	18.00	15.00	16.00
Isoleucine*	55.00	44.00	32.00	28.00	28.00	28.00	30.00	30.00
Leucine*	94.00	88.00	66.00	66.00	66.00	63.00	59.00	61.00
Lysine*	64.00	64.00	58.00	58.00	58.00	56.00	45.00	48.00
Methionine* +Cystine (SAA)	28.00	25.00	25.00	25.00	25.00	25.00	22.00	23.00
Phenylalanine* +Tyrosine (AAA)	63.00	62.00	63.00	63.00	63.00	63.00	38.00	41.00
Threonine*	34.00	32.00	34.00	34.00	34.00	34.00	23.00	25.00
Tryptophan*	11.00	11.00	11.00	11.00	11.00	11.00	6.00	6.60
Valine*	46.00	43.00	35.00	35.00	35.00	34.00	39.00	40.00

*** 9 Essential Amino Acids**

** Even though the FDA has updated the amino acid scoring patterns and recommended reference standards since 1985, they never adopted these changes for US food labeling laws; for qualified protein claims under 21 CFR 101.9, you must still use the 1985/1991 pattern for 2-5 year olds. Even though in-vitro methods exist and are widely used in research and development, the FDA does not accept in-vitro only values; you can use in vitro assays for preliminary formulation or quality control purposes, but final labeling claims require in vivo rat digestibility studies or published, peer-reviewed data.

Key Regualtory Dates and Timeline

1985 - Original standards for protein quality and amino acid references. This is still the basis for FDA PDCAAS under CFR 101.9

1991 - Reviewed and revised the standards, but reiterated the 1985 standard for 2-5 year olds as the PDCAAS standard for qualified food protein claims. Established the Preschool Child Patterns.

2007 - Reviewed and revised the standards again - although these remain the most current standards, the FDA never did adopt these for labeling regulations. These are the current global standards though.

2013 - Introduced DIAAS as a more accurate way to evaluate the quality and digestibility fo protein. They updated the recommended amino acid standards too but these were never adopted.

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