GREEN VALLEY LABORATORY

CERTIFICATE OF ANALYSIS

Product:	Proline (Amino Acid)		
Lot #:	12203	**Re-test:**	October 2029
Chemical Name:	L-Proline; (S)-Pyrrolidine-2-carboxylic acid		
CAS #:	147-85-3		
EC #:	205-702-2		
Molecular Formula:	C5H9NO2		
Molecular Weight:	115.13 g/mol		

Property	Specification	Analysis
Appearance	White crystals or crystalline powder	Conforms
Odour	Odourless	Odourless
Identity	Passes test	Conforms
Appearance of solution	Passes test	Conforms
Assay (titrimetric, on dried basis), %	98.5 – 101.0	Conforms
Specific rotation, α 25 °C/D (4 % in water)	–84.3° to –86.3°	Conforms
Loss on drying (3 h, 105 °C), %	Max 0.4	Conforms
Sulfated ash, %	Max 0.1	Conforms
Ammonium, %	Max 0.02	Conforms
Chloride, %	Max 0.02	Conforms
Sulfate, %	Max 0.03	Conforms
Iron (Fe), %	Max 0.001	Conforms
Heavy metals (as Pb), %	Max 0.0015	Conforms
Ninhydrin-positive substances (HPLC), each individual impurity, %	Max 0.2	Conforms
Ninhydrin-positive substances (HPLC), total impurities, %	Max 0.5	Conforms
Physical Properties		
Melting point, °C	220 – 222 (with decomposition)	220 – 222
Solubility in water, g/L	1500	Soluble
Density at 24 °C	1.064	1.064

Typical values from published specifications for comparable material. Not lot-specific analytical results.

DISCLAIMER

Containers that have been opened should be tested at least yearly to ensure quality. The information contained herein is obtained directly from the manufacturer and/or through our own independent testing. Green Valley Laboratory provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. Individuals receiving this information must exercise their independent judgment in determining its appropriateness for a particular purpose. As the ordinary or otherwise use(s) of this product is outside the control of Green Valley Laboratory, no representation or warranty, expressed or implied, is made as to the effect(s) of such use(s), (including damage or injury), or the results obtained. Green Valley Laboratory expressly disclaims responsibility as to the ordinary or otherwise use(s). Furthermore, nothing contained herein should be considered a recommendation by Green Valley Laboratory as to the fitness for any

use. The liability of Green Valley Laboratory is limited to the value of the goods and does not include any consequential loss. Green Valley Laboratory shall not be liable for any errors or delays in the content or for any actions taken in reliance thereon. Green Valley Laboratory shall not be responsible for any damages resulting from the use of or reliance upon this information. The user of the product is solely responsible for compliance with all laws and regulations applying to the use of the products, including the intellectual property rights of third parties.

This document is computer-automated and is valid without signature.