



AJINOMOTO HEARTLAND, INC.

AJINOMOTO ANIMAL NUTRITION GROUP

1116 Hwy 137 · Eddyville, Iowa 52553
Tel: (641) 969-3100 Fax: (641) 969-4717

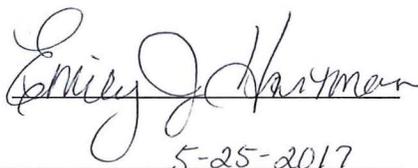
**Feed Grade L-Threonine & L-Lysine
Method Analysis Statement**

This letter is to certify that L-Threonine and L-Lysine manufactured at Ajinomoto Heartland, Inc. in Eddyville, IA, meet the below specifications. Testing is completed for each lot and a Certificate of Analysis is issued following passing results.

Item (L-Threonine)	Specification	Analysis Method
Content	Not less than 98.0%	HPLC
Purity (By Calculation)	Not less than 98.5%	
Moisture	Not more than 0.5%	Loss on Drying (105°C, 3hr)

Item (L-Lysine)	Specification	Analysis Method
Purity %	98.5%-100.0%	Titration
Moisture %	Not more than 1.5%	Loss on Drying (105°C, 3hr)
Ash %	Not more than 0.5%	Ash Oven (600°C, 3 hr)
Lysine Base (By Calculation)	78.8%-80.0%	
Appearance	Yellowish-white, crystalline powder	

Item (AjiLys)	Specification	Analysis Method
Lysine Concentration as lysine base	Not less than 50%	By calculation
Lysine Concentration as HCl base	Not less than 63%	Spectrometry

Signature 
Date 5-25-2017

Emily J. Hartman
Quality Management Representative
Ajinomoto Heartland, Inc.