AjiPro®-L
Rumen Protected Lysine

AJINOMOTO ANIMAL NUTRITION GROUP

TECHNICAL BULLETIN

Stability of AjiPro®-L in a TMR

AjiPro-L, the industry leader in rumen protected lysine (RP-Lysine), readily meets all the mixing, handling, and storage requirements for use in total mixed rations (TMR). AjiPro-L:

- **Is highly stable in hot and freezing environments,**
- **Is very stable when mixed with other feedstuffs, *and***
- **Encourages precise ration formulation.**

RESEARCH: MIXING STABILITY

Methodology

1. Six rumen protected lysine products were added to separate TMRs and hand mixed. The research was repeated using TMRs with 40.5% and then 51.8% dry matter (DM) content. The research was conducted in triplicate per product per time point.
2. At 0, 6, 18, and 24 hours post mixing, each mixture was moved to a strainer bag.
3. Each strainer bag was soaked in fresh water to extract the free L-Lysine from the TMR.
4. The free L-Lysine in the fresh water was analyzed and the degree of loss of L-Lysine was calculated.

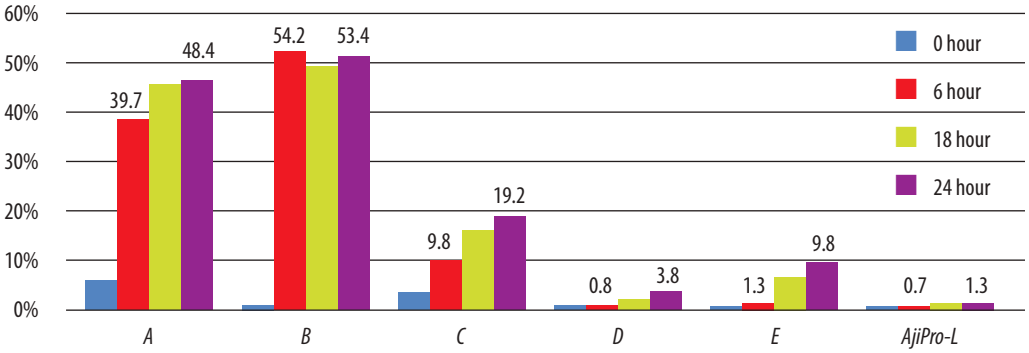
Products tested

	A	B	C	D	E	AjiPro-L
L-Lysine content (%)*	38.8	52.0	15.0	37.0	50.0	40.0
Bioavailability (%)**	48	85	46	62	64	40
Metabolizable Protein-Lysine content (%)	18.6	44.0	7.0	22.8	33.2	16.0

* Minimum guaranteed value on the label
** Manufacturer's suggested number

Results

Lysine release (% of initial)

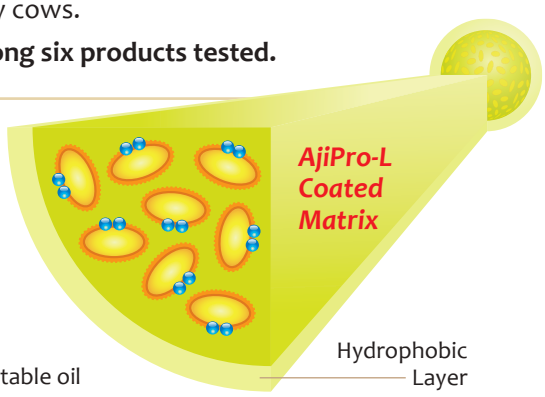


- Lysine release was increased in a time-dependent manner for all RP-Lysine products with different magnitudes.
- Products were categorized in three groups: Highly susceptible to TMR – A, B; Intermediate – C, E; Insensitive – D, AjiPRo-L.
- Feeding a TMR once a day may result in the significant loss of L-Lysine from the TMR prior to its consumption by cows.
- **AjiPro-L was the most stable in TMR among six products tested.**

AJIPRO-L STABILITY

A unique and novel structure

AjiPro-L possesses both matrix and coating advantages.

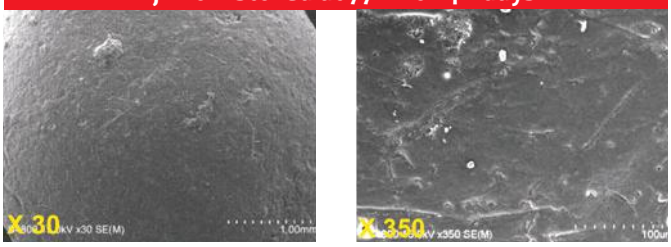


STORAGE STABILITY

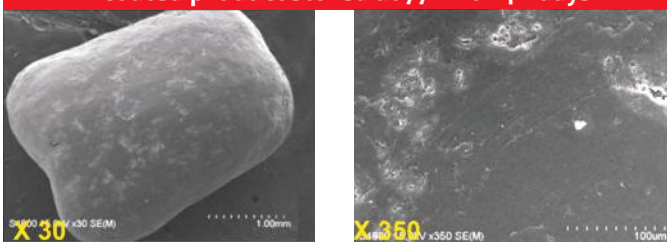
Heat

Heat stability was researched with AjiPro-L and another rumen protected lysine stored at 77˚F for 40 days and at 104˚F for 40 days.

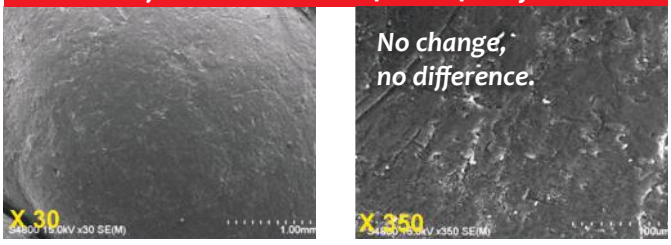
AjiPro-L stored at 77˚F for 40 days



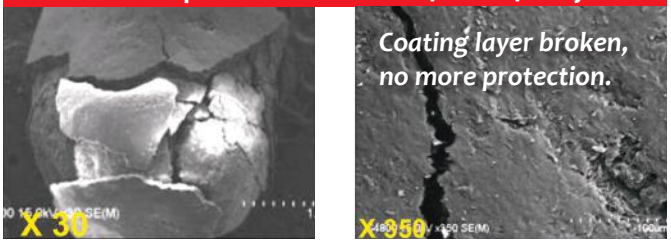
A coated product stored at 77˚F for 40 days



AjiPro-L stored at 104˚F for 40 days



A coated product stored at 104˚F for 40 days

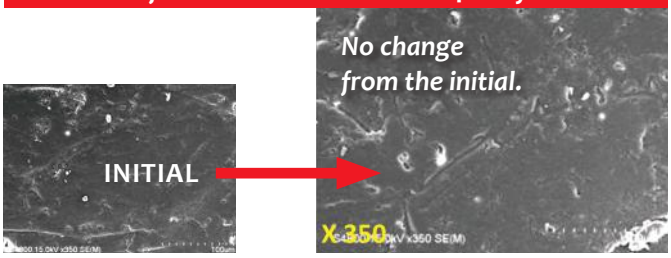


No change to AjiPro-L was seen when stored at 77˚F or 104˚F. The other RP-Lysine lost its rumen protection when cracks developed in its coating.

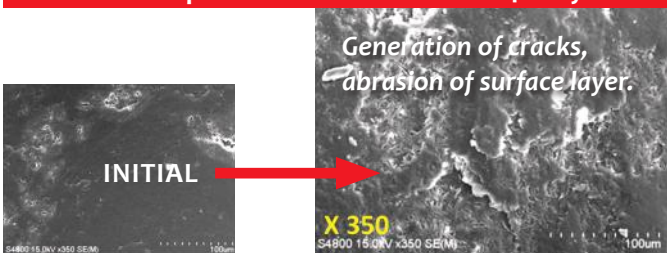
Freezing

Cold stability was researched with AjiPro-L and another rumen protected lysine stored at -22˚F for 40 days.

AjiPro-L stored at -22˚F for 40 days



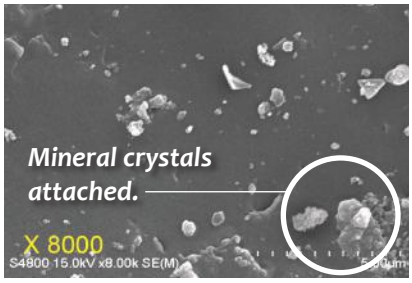
A coated product stored at -22˚F for 40 days



No change to AjiPro-L was seen. The rumen protection of the other RP-Lysine product was weakened when it developed cracks and abrasions on its surface.

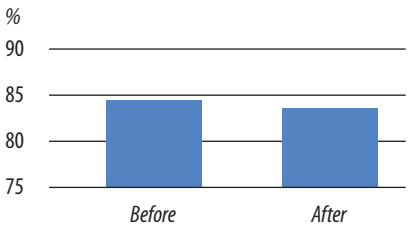
DURABLE IN PREMIXES

- AjiPro-L was mixed in a mineral and vitamin premix for five minutes
- Particles were recovered from the premix to see if:
  - The surface would have scratches or scars.
  - Protection efficacy would be deteriorated.



No scratches or scars after mixing.

***In vitro* protection**



Highly durable to mixing in a premix, with protection not affected.

AjiPro-L third generation product is now available. Third gen continues the trend of lowering cost per metabolizable Lysine while maintaining the same high level of protection and consistency Ajinomoto puts behind all of its products.

www.AjiPro-L.com

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