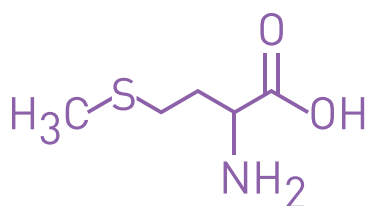


L-METHIONINE

CHEMICAL STRUCTURE OF L-METHIONINE



CJ L-Methionine delivers the biologically-active L-Isomeric Form of Methionine that is derived from an innovative fermentation process

MAIN BENEFITS OF L-METHIONINE

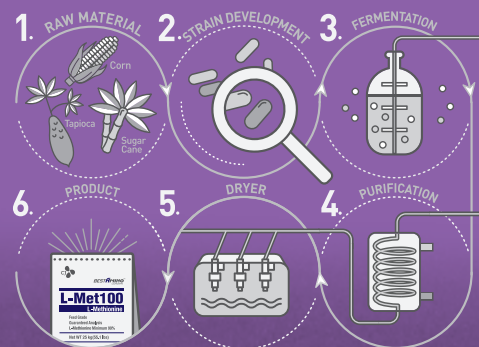
100% BIO AVAILABLE, ONLY PRODUCED BY CJ

01 Excellent bio availability

- Through a series of experimental trials in several internationally-recognized research institutions, L-Methionine has consistently shown a higher relative RBA than DL-Met on FCR, ADG and final body weight.

02 Fermentation based

- CJ L-Methionine is produced with an innovative fermentation processes using raw sugar, thus combining sustainability and efficiency in animal nutrition



03 L-Isomeric form of Methionine

- Naturally-occurring amino acids are all in the L-form (Wikipedia, chirality)
- According to Section 172.320 of FDA's code of federal regulations title 21, only **L-Met is suitable as a food additive for infants.**



WHY YOUNG ANIMALS PREFER L-METHIONINE (BLL)?

In order for D-amino acids to be oxidized in vivo by D-AAO and D-AspO, they first must be absorbed from the intestine, enter into the bloodstream and be transported to the liver and kidneys. Research showed that the expression of this enzyme is very low for young animals

[D'Aniello et al., 1993].

Therefore, **L-Met is the only biologically functional form of Met readily utilized by the intestinal cells of young animals.** The growth

and development of the gastrointestinal tract requires a variety of functions of AA metabolism, including protein synthesis, cell signaling, antioxidative function, and immune function [Shoveller et al., 2003].



Metabolism of essential AA by the mucosal cells is quantitatively greater than AA incorporation into mucosal protein [Stoll et al., 1998].

Methionine is also a precursor for Cys, which plays a key role in maintaining protein function and redox status. In addition, Met serves as an indirect precursor of GSH (through Cys), taurine, and inorganic sulfur, which are also major cellular antioxidants [Brosnan and Brosnan, 2006].

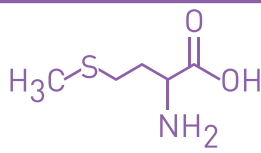
Therefore, the functional role of Met in the gastrointestinal tract, especially its antioxidative effect, may be the key effects on the health of the gastrointestinal tract health of a rapid growing animal and consequently impact its growth potential [Shen et al., 2014].

THE THEORY OF BLL

- D-form amino acids must be oxidized (racemization) to mobilize in the body (i.e. anabolism and catabolism).
- This oxidization process requires enzyme reaction. (racemase; e.g. D-AAO, D-AspO).
- Its occurrence (activation) is increased by the age in animal.

CJ BIO L-METHIONINE SPECIFICATION

• [Chemical Description]

Chemical Structure			
Molecular formula	C ₅ H ₁₁ NO ₂ S		
Molecular weight	149.21 g/mol		
Isomar	L (Laevo-rotatory)		
CAS number	63-68-3		

• [Product Guarantee]

L-Methionine	Minimum	99 %	HPLC, ADAC 999.13
Moisture	Maximum	0.5 %	105°C for 4 hours