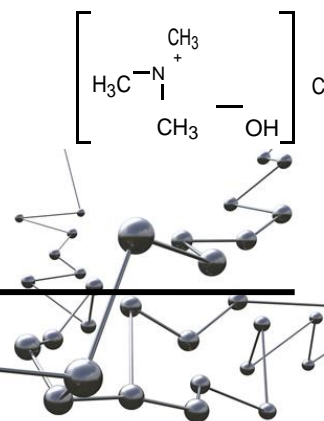


Choline Chloride 60% on Corn Cob (Vegetable)

Technical Data Sheet



Chemical synonym

(2- hydroxyethyl) trimethylammonium chloride

General information

CAS number : 67-48-1
EINECS Nr. : 200-655-4
Molecular formula : C₅H₁₄ClNO
Molecular weight : 139.6 g/mol



Description

(2- hydroxyethyl) trimethylammonium chloride or choline chloride is an essential nutrient, and finds its main application as a feed additive.

Besides producing choline chloride as an aqueous solution, Jujia also produces high quality choline chloride on vegetable carrier.

It is available in 60 % concentrations.

Specifications

	Unit	CC 60 % on Cereal
CC min.	% w/w	60
H ₂ O max.	% w/w	2.0
Particle Size	mm	90% <0.85
Heavy metal (asPb)	% w/w	0.002
Apparent density	kg/l	0.35 – 0.55
Appearance	---	Light brown powder
Total free amine/ammonia (as (CH ₃) ₃ N)	% w/w	0.30

Methods of Analysis

Research from recent years clearly shows that the choline chloride content from some competitive sources is significantly lower than the content which is mentioned on the certificates of analysis, due to intentional adulteration of the product by adding other chlorides, e.g. household salt. When analyzing choline chloride with the standard Volhardt method (= the chloride method), this common salt will be calculated as choline chloride.

Therefore, if the product quality is suspected, we recommend to use a more selective method of analysis, for example the Reinecke salt gravimetric method or ion chromatography.

Quality Management & Control

In the interest of its customers, Jujia follows a number of strict rules to guarantee the quality of choline chloride as a high valuable feed additive.

Our company is certified ISO 9001 and FAMI-QS certificate for its choline chloride

The product is GMO free and complies with European Directive (2002/32/EC, 2006/13/EC, 2012/277/EU and amendments) on impurity levels.

Shelf-life

24 months when stored in closed bags at room temperature.

Packaging

Paper bags : 20, 25, 500&750 kg
External : Paper with multilayer polypropylene
Internal : Transparent HPPE

Transport regulations

Since choline chloride is not referred to in the regulations relating to the transport of dangerous goods, it is not subject to any regulation.

Storage and handling

Because of the strongly hygroscopic nature of choline chloride, the bags should be stored firmly sealed and protected from damp.

Open bags should be used immediately.

Use of Choline Chloride

Choline is commonly classified as a vitamin. It belongs to the family of water soluble B-vitamins. It was formerly known as vitamin B4.

Like other vitamins, it plays a significant role in nutrition, but its daily requirement seems to be hundreds of times greater than that of other vitamins.

Choline has three essential metabolic functions :

- As a constituent of phospholipids, improving fat transport and cell construction
- As a precursor in the synthesis of acetylcholine, interacting in muscle control (neurotransmitter)
- As a source of labile methyl groups, essential for numerous biological processes.

Choline occurs in almost all feed ingredients (see for example publications by the NRC); however not all naturally occurring choline is bio-available.

Many animals have a choline requirement that is not fully covered by the natural choline content of the feed.

Therefore extra choline is often supplemented, and choline chloride salt is the common form in which choline is added to the feed.

Addition levels vary by species, but are also dependent on age, feed composition, environmental stress, and breed. The required addition level is the difference between the requirements on the one hand and the levels of natural available choline on the other. It is further augmented with a safety margin, to cover up for variations of choline levels in natural feed ingredients.

Dosing

The following supplementation levels reflect average recommendation values for addition of choline to practical diets :

<u>Species</u>		<u>Choline supplement in mg/kg feed</u> (90 % dry matter)
Broilers	Starting (0-8 weeks)	500-700
Broilers	Growing (8-18 w.)	300-600
Layers		250-500
Layers	Breeding	300-600
Turkeys	Starting (0-8 weeks)	800-1000
Turkeys	Fattening (8 – end)	500-700
Turkeys	Breeding	500-700
Ducks	Market/Breeding	900
Pigs	Starting (10-25 kg)	300-600
Pigs	Growing (25-60 kg)	200-400
Pigs	Finishing (60kg-end)	150-300
Pigs	Gestating/Lactating	150-500
Fish	depends on species	300-800
Shrimp		400-600
Calves		200-300
Cows		----
Dogs		1000-1200
Cats		1000-1400

These recommendations can serve as a general guideline only, since diet composition and vitamin availability from regular feed ingredients can vary greatly. The mentioned addition level is expressed in choline and has to be recalculated into an amount of choline chloride to be added when drawing up dietary formulations in the feed mill.

1 mg/kg Choline = 1,34 g/ton choline chloride 100 %
