SPECIFICATION SHEET

ZEIN F4000LE - LOW ELECTROLYTE GRADE

For Industrial Use Including Coating of Aircraft Jet Engines

ZEIN is the water-insoluble prolamine protein found only in corn gluten. LOW ELECTROLYTE GRADE is re-extracted to reduce the Electrolyte level.

Description:	Straw to yellow colored granular powder, bland in taste and aroma
CAS Number:	9010.66.6
Molecular Weight:	Maximum 35,000
Bulk Density Range:	1.25 – 2.1 gm/10ml
Identification Tests:	Positive for USP/NF Tests (A) and (B) and Test (C), which is also the Solubility Test in an alcohol/water solution below.
Solubility in Water:	Insoluble
Solubility in a 75-80% alcohol/water solution at about 37˚C	1gm of ZEIN to 10ml of the solution gives a clear to cloudy solution
ZEIN (Protein):	81.88-100% calculated on a dry basis
Nitrogen:	13.10 – 16.00%
Residue on Ignition	0.1% maximum
Loss on Drying:	8% maximum (drying for 2 hrs at 105˚C)
Total Ash:	2% maximum
Heavy Metals:	20ppm maximum
Mesh Size:	95% through 20 mesh

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Standard Packaging: 25 kilo poly bag inside double walled corrugated carton (55.12lbs net)

ASSAY METHODS FOR ZEIN

Identification Tests

A. Add a few drops of nitric acid t.s. to an aqueous **ZEIN** suspension – heat it. The solution will be a light yellow color. After adding ammonia t.s., an orange color develops.

B. Add a few drops of copper sulfate t.s. to an alkaline **ZEIN** solution and warm it in a warm bath. A purple color will develop.

C. Solubility in alcohol: Insoluble in aqueous alcohol. Dissolve 1gm in 10ml of 75-80% alcohol with water at 37˚C gives a clear to cloudy solution.

Assay

Proceed as directed under "Nitrogen Determination (461) USP, **ZEIN** % N_2X 6.25.

Solubility in Alcohol

Dissolve 1gm in 10ml of 80% alcohol.

Loss on Drying

Accurately weigh 2gm of sample into a tared weighing dish. Dry at 105˚C for 2 hrs. Cool to room temperature in a desiccator. Weigh and calculate the percent loss on drying as follows:

$$LOD\% = \frac{\text{Wt. Sample wet} - \text{Wt. Dry}}{\text{Wt. Sample Wet}} \times 100$$

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Total Ash

Weigh accurately 2gm of sample into a large tared crucible. Ignite the contents gently, then heat to a dull red. Cool to room temperature in a desiccator and add 1ml concentrated sulfuric acid. Slowly heat to 800-850˚C. Hold at that temperature for 2 hrs. Cool to room temperature in a desiccator. Weigh and calculate the total ash as follows:

$$\text{Total Ash \%} = \frac{\text{Sample wt.} - \text{Wt. Residue}}{\text{Weigh Sample}} \times 100$$

Heavy Metals

Proceed as directed under “Heavy Metals” (231) USP, Method II

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