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# Protease AP CONC

## PRODUCT # 205

(For Consideration in Food, Brewing and Animal Feed Applications)

### I. DESCRIPTION

**Protease AP CONC** is a bacterial alkaline protease produced by the controlled fermentation of *Bacillus licheniformis*, an endopeptidase capable of hydrolyzing the interior peptide bonds of protein molecules. The broad substrate specificity enables the enzyme to effectively hydrolyze most proteins. Hemoglobin, casein, egg yolk, soya, gelatin, fish, and other proteins are hydrolyzed to lower molecular weight peptides.

**Protease AP CONC** demonstrates excellent stability and activity at elevated temperatures in alkaline solutions.

### II. PROPERTIES

Appearance:	Light brown powder (Color does not affect or reflect activity)
Odor:	Characteristic odor
pH (1% soln):	6.0 – 10.0
Guaranteed Activity: Protease	NLT 2,000 KDAPU/g NLT 3,000 KMDU/g

### III. ACTIVATOR AND COFACTORS

No activator or cofactors are required for the complete activity of **Protease AP CONC**.

Optimum pH range	pH 9.0 to 10.0
Effective pH range	pH 7.0 to 10.0
pH Stability	pH 6.0 to 10.0

Optimum Activity Temperature	60°C
Effective Temperature Range	Up to 65°C (150°F)
Temperature Stability	Up to 70°C (158°F)

### IV. INHIBITORS

**Protease AP CONC** is a serine hydrolyze and is inhibited by organophosphorous reagents, such as diisopropylphosphofluoridate and diisopropyl fluorophosphate, which react with the amino acid serine. Oxidizing agents which release active chlorine also inhibit the action of **Protease AP CONC**.

### V. SUBSTRATE

The physical state of protein is important with respect to susceptibility to protease hydrolysis. Native globular proteins are generally resistant to proteolytic attack because

of their compact tertiary structure. Susceptibility of proteins to hydrolysis can be improved by denaturing the protein substrate and thereby exposing peptide bonds to enzymatic hydrolysis. Heat, extremes of acidity or alkalinity, urea, detergents, and reducing or oxidizing agents promote protein denaturation and subsequent proteolysis.

**Protease AP CONC** bacterial protease has a broad substrate specificity and randomly hydrolyzes the inner peptide bonds of denatured proteins. The enzyme efficiently hydrolyzes casein, hemoglobin, egg yolk, gelatin, soya, fish and other plant and animal proteins. The proteolytic activity yields lower molecular weight peptides and amino acids.

## **VI. APPLICATIONS**

Fish	Processing of fish solubles and whole fish.
Soya	Processing soluble and hydrolyzed proteins.
Protein Modification	Where the solubilization and modification of proteins are desirable <b>Protease AP CONC</b> can be used to hydrolyze protein gels to lower viscosity which may be readily filtered or concentrated.
Feed Supplement	To improve animal feed utilization and efficiencies.

## **VII. USE LEVEL**

Enzyme requirements are generally dictated by processing conditions. They will vary with protein substrate concentration, degree of desired protein hydrolysis, pH, temperature, and time. In general, increasing the **Protease AP CONC** bacterial protease concentration will increase the rate of protein hydrolysis and shorten the time necessary for hydrolysis. Initial evaluations of **Protease AP CONC** are made at a concentration of 200 to 400 DAPU per kilogram of protein. Trial applications, however, should be made to determine the final usage level.

## **VIII. STORAGE STABILITY**

In sealed containers, under cool dry conditions, the loss of activity is normally less than 10% over six months. Storage life can be extended by storing under refrigeration at 5°C.

## **IX. TECHNICAL SERVICE:**

Information covering specific applications for this product is available from your Dyadic International sales/technical representative. We will work with your technical personnel to resolve problems and optimize your process.

## **X. SAFETY AND HANDLING:**

For detailed information please refer to the **Protease AP CONC** MSDS available upon request.

*Nothing disclosed is to be construed as a recommendation to use our products in violation of any patents. The information presented is believed to be accurate. However, said information and products are offered without warranty or guarantee, except as to the composition and purity stated herein since the ultimate conditions of use and variability of the materials treated is beyond our control. We recommend that the prospective user determine the suitability of our materials and suggestions before adopting them on a commercial scale. The goods described herein are sold "as is" and "with all faults". The seller specifically disclaims all warranties in connection with the sale of the goods, both express and implied, including, without limitation, the warranties of merchantability and fitness for any particular purpose, as those terms are defined in the uniform commercial code of Florida. The seller shall not be liable for any incidental or consequential damages whatsoever.*