THE SOLID FERTILIZER PROCESS

Hides rich in collagen are unloaded into special storage areas and then sent into the reactors where they undergo thermal hydrolysis.

FULLY CONTROLLED HYDROLYSIS

AGROGEL®
GELATINE FOR AGRICULTURAL USE

The FCH® process

FULLY CONTROLLED HYDROLYSIS

Thermal hydrolysis of collagen occurs within dynamic autoclaves. The process has three sequential phases of varying lengths performed at specific controlled temperatures. The gelatin material exiting the four reactors is sent on to the continuous dehydration line. In this line, under controlled conditions and at low temperature (100 °C), the collagen is finally converted into gelatin for agricultural use. The humidity, temperature, and rate of extraction of **AGROGEL®** are automatically, continuously monitored so as to obtain a homogenous, standardized product that features different lengths of protein chains according to a pre-set pattern in order to allow for a regular release of nitrogen to the soil, naturally mediated by microorganisms. Defined during the production phase, this release process allows **AGROGEL®** to meet the agronomical needs of the crops based on the absorption curve for nutrient elements.

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AGROGEL® is a solid, stabilized, hydrolyzed gelatin based on protein nitrogen obtained from ILSA's innovative FCH® process. It decomposes according to a natural mechanism by the microorganisms in the ground and the nitrogen is made fully available to the plants progressively when the temperature exceeds 8 to 10 °C. It performs a biostimulating and complexing action.

RAW MATERIAL PREPARATION PHASE

RAW MATERIAL: COLLAGEN

THE RAW MATERIAL IS SIFTED AND SEPARATED BY SIZE.

WASHING – STERILIZATION - STABILIZATION

SIZE SELECTION

THERMAL HYDROLYSIS IS SELECTED BASED ON THE SIZE OF THE RAW MATERIAL AND THE APPLICATION OF THE FINAL PRODUCT. IT CAN BE: SHORT, AVERAGE, AND AGGRESSIVE

FCH PROCESS

DYNAMIC AUTOCLAVE WITH ROTATIONAL EVOLUTION

STEAM INJECTION AT CONTROLLED TEMPERATURE AND PRESSURE

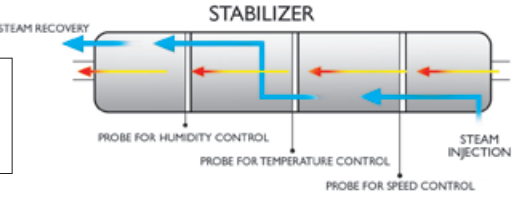
TEMPERATURE: 100 °c FOR 90 MINUTES PRODUCT WITH LONG TERM MINERALIZATION: UP TO 8 MONTHS*	
TEMPERATURE: 133 °c FOR 45 MINUTES PRODUCT WITH MEDIUM-LONG MINERALIZATION: UP TO 5 MONTHS*	
TEMPERATURE 162 °C FOR 5 MINUTES PRODUCT WITH SHORT MINERALIZATION: UP TO 40 DAYS*	

Mineralization times tested in controlled environment

GELATIN NOT STABILIZED

THE DYNAMIC STABILIZER USES STEAM, CONTROLLED TEMPERATURE AND HUMIDITY.

LOW TEMPERATURE PROCESS, 100 °C, TO AVOID DENATURING THE PRODUCT



AFTER SCREENING, **AGROGEL®** IS AVAILABLE IN THREE DIFFERENT PARTICLE SIZES:

• POWDER • MICRO GRANULE • GRANULE

OBTAINED IN THIS MANNER, THE PRODUCT CAN BE MIXED OR REACTED WITH OTHER RAW MATERIALS ACCORDING TO THE SPECIFIC RECIPES THAT ALLOW ILSA TO OBTAIN THE FULL LINE OF FERTILIZERS IT OFFERS TO THE MARKET.

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