

## APV Cavitor Technology in Meat, Poultry and Seafood and Pet Food

A NEXT GENERATION MIXING MICROSCOPIC MIXING AND SCALE FREE HEATING TECHNOLOGY

### THE POWERFUL FORCES OF CAVITATION PRODUCE RESULTS THAT FAR EXCEED THOSE OF CONVENTIONAL TECHNOLOGY

Controlled cavitation is a new breakthrough technology for microscopic mixing, dispersion/homogenization and scale-free heating based on hydrodynamic cavitation.

A key challenge in processed meat, poultry, seafood and pet food products is to ensure an efficient mixing, hydration, and functionalization of key ingredients like hydrocolloids, proteins and vitamins, spices and flavors. This is essential in order to maximize the yield and functional properties of the ingredients and to obtain attractive texture, consistency and appearance of the end products. Incorporation, dispersion and texturizing of the various products is another challenge. Product aeration and a scale free heating process might also be a need for some products. The APV brand Cavitor offers a wide range of benefits to the industry that meet the needs of our customers.

### THE PRINCIPLE OF THE APV BRAND CAVITATOR

The heart of the technology is a rotor spinning in a liquid chamber. The rotor has a number of radial cavitation holes. The spinning action generates internal liquid frictions (disk friction) and the holes generate hydrodynamic cavitation. The cavitation creates high shear ensuring a very efficient microscopic mixing effect and friction which generates controllable scale-free heating.



APV BRAND CAVITATOR KEY APPLICATIONS		APV BRAND CAVITATOR KEY BENEFITS
HYDRATION OF PROTEINS AND HYDROCOLLOIDS	→	ENHANCED YIELD AND FUNCTIONAL PROPERTIES
FUNCTIONALIZATION OF WPC AND OTHER PROTEINS	→	NEW DIMENSIONS OF FUNCTIONAL PROPERTIES
DISPERSION OF VITAMINS, SPICES AND FLAVORS ETC.	→	OPTIMAL UTILIZATION OF EXPENSIVE INGREDIENTS
EMULSIFICATION	→	PRODUCT CONSISTENCY AND STABILITY/APPEARANCE
GAS INJECTION/AERATION OF MOUSSE TYPE PRODUCTS	→	PRODUCT CONSISTENCY AND VOLUME AND DIGESTION
EFFICIENT MIXING/DISPERSION OF MEAT AND MEATY JUICES	→	PRODUCT STABILITY/TEXTURE/ APPETIZING APPEARANCE
PREPARATION OF SAUCES AND GRAVIES FOR READY MEALS	→	INGREDIENTS PREPARATION AND EMULSIFICATIONS ETC.
SCALE FREE HEATING TO AVOID PLANT FOULING	→	ENHANCED UP-TIME AND MINIMIZED CIP / OPEX



Ready to eat meal



Pet food



Fish mousse

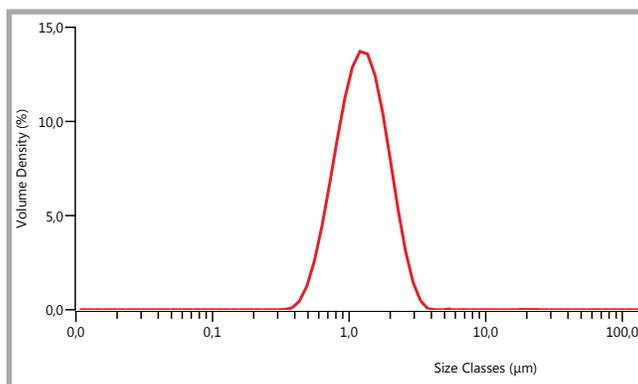
## USE OF THE APV BRAND CAVITATOR IN MEAT, POULTRY, SEAFOOD AND PET FOOD PRODUCTION

Whether you want to produce a pet food or a ready to eat meal, poultry or seafood product there are several key process steps involved.

These process steps include ingredients hydration, functionalization and preparation for incorporation and mixing and dispersion.

Whey Protein Concentrate (WPC) types are often used in meat products and ready meals etc. and a microparticulation (MP) process by means of the APV brand Cavimator can help you by enhancing functional properties like water binding, emulsification and creamy mouth feel.

The Cavimator are also used for multiple process functions like emulsification, foaming by injection of N<sub>2</sub> or other gases to products like mousse type pet food and fish mousse, etc. Microscopic mixing and preparation of gravies, sauces and creamy soups are other application opportunities. Scale free heating of high fouling products to improve quality and plant up time is another key feature and benefits of the Cavimator.



Particle size distribution of functionalized WPC

## FEATURES AND BENEFITS IN MEAT, POULTRY, SEAFOOD AND PET FOOD PRODUCTION

The controlled cavitation technology offers a wide range of key features and benefits in processed meat, poultry and seafood and pet food production:

- The excellent microscopic mixing effect ensures a fast and short hydration time of major ingredients like starch and proteins and further minor ingredients like gums etc. The results are often significant savings on raw material and also improvement of functional properties
- Functionalization of WPC through a microparticulation process to enhance water binding, emulsification and creamy taste
- High flexibility for different products with different mixing needs. E.g. efficient mixing of meat and juices and dispersion of vitamins, spices and flavors to maximize utilization of these expensive ingredients
- Thanks to the highly efficient mixing the Cavimator is superior for gas dispersion for foaming of products like mousse type pet food and fish mouse etc.
- The scale free heating feature enables more gentle heating longer run resulting in fewer and shorter Clean-In-Place (CIP) cycles with significant OpEx savings.
- Highly reliable and sanitary design meeting 3-A and EHEDG standards
- Low maintenance time and cost
- The APV brand Cavimator can be delivered as a single unit or as a plug & play skid mounted system



Based in Charlotte, North Carolina, SPX FLOW, Inc. (NYSE: FLOW) is a multi-industry manufacturing leader. For more information, please visit [www.spxflow.com](http://www.spxflow.com)

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