



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

A NEXT GENERATION MICROSCOPIC MIXING AND SCALE FREE HEATING TECHNOLOGY

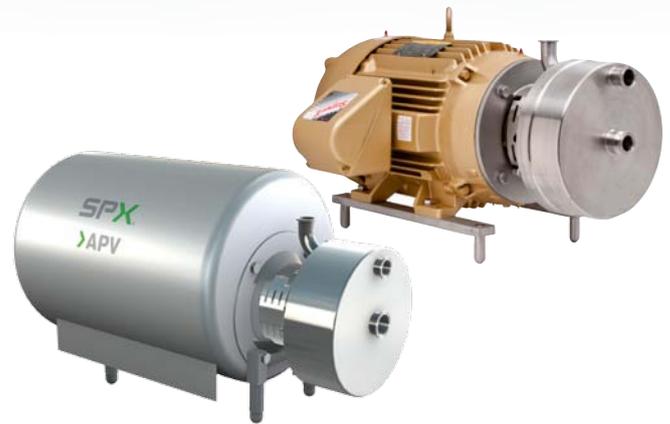
The powerful forces of cavitation produce results that far exceed those of conventional technology

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

A key challenge in processed meat, poultry and seafood and pet food products is to ensure an efficient mixing, hydration, and functionalisation of key ingredients like hydrocolloids, proteins and vitamins, spices and flavours. This is essential in order to maximise the yield and functional properties of the ingredients and to obtain attractive texture, consistency and appearance of the end products. Incorporation, dispersion and texturing 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 Cavitor offers a wide range of benefits to the industry that meet the needs of our customers.

The principle of the APV Cavitor

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 CAVITATOR KEY APPLICATIONS		APV CAVITATOR KEY BENEFITS
HYDRATION OF PROTEINS AND HYDROCOLLOIDS	→	ENHANCED YIELD AND FUNCTIONAL PROPERTIES
FUNCTIONALISATION OF WPC AND OTHER PROTEINS	→	NEW DIMENSIONS OF FUNCTIONAL PROPERTIES
DISPERSION OF VITAMINS, SPICES AND FLAVOURS ETC.	→	OPTIMAL UTILISATION 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/ APPETISING 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 MINIMISED CIP / OPEX

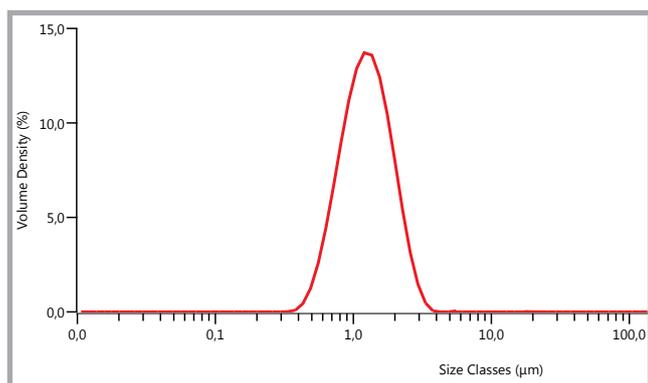
Use of the APV Cavitator in meat, poultry and seafood and pet food production

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, functionalisation 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 Cavitator can help you by enhancing functional properties like water binding, emulsification and creamy mouth feel.

The Cavitator are also used for multiple process functions like emulsification, foaming by injection of N₂ 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 Cavitator.



Particle size distribution of functionalised WPC

Features and benefits in meat, poultry and 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
- Functionalisation 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 flavours to maximize utilisation of these expensive ingredients.
- Thanks to the highly efficient mixing the Cavitator is superior for gas dispersion for foaming of products like mousse type pet food and fish mousse etc.
- The scale free heating feature enables more gentle heating longer run resulting in fewer and shorter CIP cycles with significant OpEx savings.
- Highly reliable and sanitary design meeting 3A and EHEDG standards
- Low maintenance time and cost.
- The APV Cavitator can be delivered as a single unit or as a plug & play skid mounted system.



Ready to eat meal



Petfood



Fish mousse



SPX

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