Nonthermal emerging technologies have been industrially applied or studied for food preservation as an alternative thermal processes for obtaining products with better nutritional and sensory attributes. Several issues may be considered for designing the process to avoid microbiological risks, such as food composition and other characteristics, baroresistant variability of target microorganisms, sub lethal injuries and recovery capacity, storage conditions, inactivation and growth kinetics after microbial recovery. Furthermore, the matter turns even more complex when involving hurdle technologies by combining other technologies with high pressure for food preservation. This presentation discusses the main aspects to be considered in process design and validation based on different studies and commercial examples with different food products.