

# CONSUMABLE CULINARY STEAM

## STEAM PURITY

### PURE

PHARMACEUTICALS  
BIOTECHNOLOGY

### CLEAN

FOOD & BEVERAGE  
PERSONAL CARE  
COSMETICS  
CHEMICAL

### CULINARY & FILTERED

PETFOOD  
MEAT & POULTRY  
FOOD & BEVERAGE

### PLANT

PULP & PAPER  
PETROCHEMICALS  
STARCH CONVERSION  
INDUSTRIAL LAUNDRY  
HEAVY METALS & MINING  
WASTEWATER (Municipal & Industrial)



## APPLICATIONS

Jacketed kettles/blenders  
Reactors/tanks/kettles  
Biokill & sterilization

Tunnel pasteurizing/retort  
Food cooking/defrosting  
Blanching/vegetables/other  
Washdown/hose stations  
CIP/bottling/canning  
PVOH/rubber/chemicals

Food/slurry cooking  
Blanching/vegetables  
Washdown/hose stations  
CIP/bottling/equipment  
Can topping/dilution  
Extrusion/rendering

Water heating/dilution  
Dry-end/wet-end/starch  
Whitewater/liquor heating  
Pulp stock/bleaching/coating  
Oil extraction/pickling/emulsion  
Ethanol/biofuels/cellulosic ethanol  
Thickening/sweetening/confection  
Anaerobic digestion/sludge/settling pond

## HOW IS MY PRODUCT FORMULATION AFFECTED BY ADDING STEAM?

Steam is sterile water, doesn't alter the taste, and can be added to the existing water already captured on an ingredient statement. Many food and beverage companies incorporate steam (direct steam injection) in their processing systems without issues, and in most cases, the product results in better quality, texture, and taste.

## ARE YOUR PRODUCTS CERTIFIED?

Yes. The SilverLine, Infuze Cooking System, and Sanitary Hydroheater are all 3A certified. The SilverLine and Infuze Cooking Skid are designed to meet FDA, CE, and EHEDG standards.

## WHAT MAKES STEAM CULINARY?

The steam entering the system goes through a complete filtration system. 3A guidelines additionally require filtering steam using a maximum particle size of 5-micron.

Also, boilers utilize pH adjustment, oxygen scavenging, and descaling chemicals. The chemicals must be FDA food-grade and conform to the approval list of boiler chemicals. These chemicals do not travel with steam and stay in the boiler because their boiling points are much higher than water.

Amines are chemicals used to keep condensate returns clean and corrosion-free. However, these are not food-grade chemicals and cannot be used in systems requiring culinary steam.

## IS STEAM COOKING IN FOOD A COMMON PRACTICE?

Yes. Hydro-Thermal has 85 years of proven steam technology. The world's largest companies utilize steam (direct steam injection) in their product processing. Hydro-Thermals' products to process meat, produce soups, sauces, fruit products, baby food, tomato paste/sauces, dairy, milk, cheese, vegetables, and much more. Hydro-Thermal can provide suitable references upon request if necessary.

## HOW MUCH WATER IS ADDED DURING STEAM COOKING?

The general rule of thumb is 1% water for every 10° of temperature rise. Since variables like composition and specific heat vary from product to product, the average addition is 8-12% water, yet can be above or below depending on the application.

The 8-12% can occur if Hydro-Thermal equipment is thoroughly cooking the product. If the equipment is heating the product, then this percentage can be significantly lower. Hydro-Thermals' engineers can calculate the exact percentage based on the specific processing conditions.

## Need more information about Hydro-Thermal products?

Go to [www.hydro-thermal.com](http://www.hydro-thermal.com) or contact us at [info@hydro-thermal.com](mailto:info@hydro-thermal.com)

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