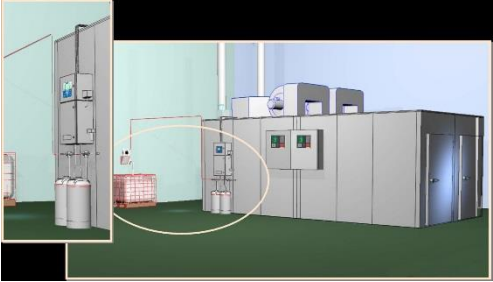
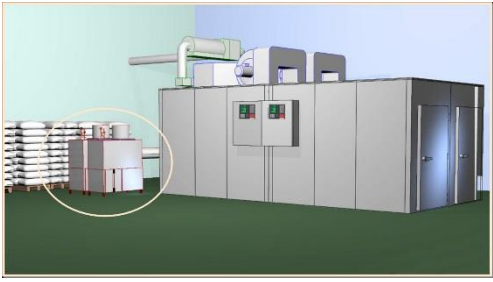




CleanSmoke vs. Steam Smoke

CleanSmoke	Steam Smoke	
Purified smoke generated on the basis of purified primary products (smoke condensates)	Smoke produced from sawdust or wood chips that are heated with superheated steam. The smoke is transported in a pipe system into the smokehouse.	
<i>Installation examples</i>		
<p>CleanSmoke</p> 	<p>Steam Smoke</p> 	
Facts		
	CleanSmoke	Steam Smoke
<i>Temperature</i>	ambient temperature	300 - 400°C
<i>Smoking times</i>	short	short
<i>Smoke taste and colour</i>	adjustable as per request	Dark colour and intense smoke taste
Limitation for application	none	Not applicable for cold smoking processes
Handling and work safety	No heavy lifting necessary, clean work environment, no tar and no ashes	Working with: wood dust and wood chips, tar and ash, heavy lifting is necessary
Safety	No danger of fire and explosion	Danger of explosion and fire, special protection measures must be taken
Health	<ul style="list-style-type: none"> - PAH largely eliminated - 3-MCPD not present - Formaldehyde largely reduced 	High level on PAH, 3-MCPD and Formaldehyde

Environmental impact		
	CleanSmoke	Steam Smoke
Emissions to air	No emission is being produced	Emissions such as NO _x , CO, TVOC are being produced TVOC: 46,50 mg / Nm³
Air treatment	Unnecessary	Necessary
Tar deposits	No deposits	<i>7,7 kg tar is being produced per 1 ton of smoked products</i>
Ash deposits	No deposits	<i>15,4 kg ash is being produced per 1 ton of smoked products</i>
Water consumption for cleaning	0,037 m ³ per 1 ton of smoked products ¹	<i>0,71 m³ per 1 ton of smoked products</i>
Waste water pollution	COD: 384.377,76 g per 1 ton¹ BOD: 173.983,68 g per 1 ton¹ Total N: 1347,84 g per 1 ton¹	Data is not available. IMPORTANT: The waste water pollution is in comparison to the CleanSmoke and, particularly, to the combustion smoke significantly higher . The reason for this is the higher consumption of sawdust or woodchips and because the smoke is being scrubbed with a gas scrubber.
Cleaning detergent ²	0.34 litres per FU ^{2,3}	7.37 litres per FU ³
		

¹ FDM_BREF_Fragebogen-MeatProcessing_Heinrich Bille GmbH & Co. KG_v2.xlsm

² Final report on life cycle assessment of meat products smoked by the use of purified primary smoke products in comparison to conventional smoking, Deutsches Institut für Lebensmitteltechnik e.V. (DIL)

³ Functional unit (FU): 1 ton of smoked sausages

Reference companies		
	<i>CleanSmoke</i>	<i>Steam smoke</i>
For the comparison	<ul style="list-style-type: none"> • Non-disclosure agreement 	<ul style="list-style-type: none"> • Non-disclosure agreement
Further companies	<ul style="list-style-type: none"> • Kleinemas Fleischwaren GmbH & Co. KG • H. & E. Reinert Westfälische Privat-Fleischerei GmbH • Glocken-Beune GmbH 	