



Typical air distribution in a packing room, where the air flows from textile ducts from the ceiling and is exhausted from a grid just above floor level at the four corners of the room.

The Air Contamination Control is fundamental in the industrial fields where products can be contaminated by airborne particles during production, ripening, seasoning or packaging.

The air distribution is also essential for a good result. This because the air, to be sanitized, needs a correct number of recirculations all over the volume of the rooms, to avoid stagnant zones.

In ripening rooms, proper air flow is required also for correct ripening of the product. Uniform air distribution creates a uniform quality of the product, and also the weight loss is minimized, due to better control of the humidity all over the storage and ripening volumes.

Air conditioning methods differ according to the humidity level required by the conditioned rooms and by the presence or not of workers in the above mentioned rooms.

Production, processing and packing rooms generally need a smooth air flow dropping from the ceiling and exhausted just above the floor, to obtain a sort of laminar flow that “cleans” the room. Long seasoning ripening rooms generally require a deep diffusion system to keep all the products in the same condition, and at the same time avoiding hard air impact against the product that could affect the quality and create problems on the surface.

Each product and each step in the ripening process needs a specific air distribution system correctly sized to avoid affecting the desired humidity content of the product and the surface of the product.

Temperature control is quite simple, but will affect the humidity if the temperature of the refrigerant and the coil surface is not properly regulated.

Undersized coils in general will reduce the humidity in such a way that the weight losses increase dramatically.



Drying room for ricotta (anary) cheese equipped with contamination control.



Drying room for sausages with special swinging air distribution system.

The flow rate and the size of the coil must be such that dehumidification does not occur when not required. This means that the plant needs a size which is much larger than the size of a plant without humidity control, but the payback in term of less weight loss takes very little time.

Some products like cheeses need quite a long period of ripening and the weight loss problem is a serious one since few a few percentages of weight loss means a considerable amount of economic loss.

Years ago, a deep diffusion system was developed by a Dutch company, with very good results in weight losses, but unfortunately, this system was seriously affected by contamination since the distribution pipes and nozzles could not be properly sanitized.



Storage system for racks with deep diffusion air distribution.



Air distribution nozzles, to allow the air flow to gently surround the product.

Combination of the air deep distribution system shown above and the Air Contamination Control provide the perfect result to avoid any spread of micro-organism through the system and into the storage room.

This solution is to be understood as the best solution and state of the art, but it is quite expensive.

Recently further steps have been achieved with air ionization at the nozzle outlet. The system is completely in stainless steel.

The air that is filtered through electrostatic cells is ionized before the outlet of each nozzle aligned just below the upper support grid of the cheeses.



Cheese ripening system with deep air diffusion and contamination control.