

PennTech Newsletter

NL# 717

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Quote of the Week:

"He who asks a question is a fool for five minutes. He who does not ask a question remains a fool forever."
....Chinese Proverb

Next Week's Topic:

- Sterilization Tunnel Cooling Chamber Sterilization-

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Proper Vial Cooling After Sterilization

From the tunnel's sterilization chamber, glass vials are automatically transferred to the cooling chamber where the vials are cooled down gradually to near ambient temperatures to prevent cracking of the glass. The glass is subjected to unidirectional air flow consistent across the width of the zone. Air velocity is maintained to +/-20% of the average airflow and passes through the HEPA air filter.

To cool the vials down in the cooling chamber, chilled water is used in a heat exchanger. The temperature of the cooling coil of the heat exchanger should be higher than the dew point of the air. (Dew point is the temperature at which dew begins to form or vapour to condense into a liquid).

Since the class 100 cleanroom has a higher pressure than the cooling chamber of the tunnel, the humidity of the air in the tunnel is the same as that of the class 100 cleanroom.

Typically, the relative humidity in the cleanroom used to process aqueous products is 50% at 20°C. At these conditions, the dew point is approximately 9°C. The target temperature of the chilled water in the cooling chamber is therefore 12°C.

PennTech tunnels are equipped standard with a dual piping system whereby the chilled water supply line is inside the return pipe of the cooling coil. The chilled water is thus pre-warmed in order to prevent condensation.

If required, a three-way valve and a pump can be installed (as an option) to mix the chilled water from the loop with the exiting water from the cooling coil of the tunnel to chilled water temperature of 12°C. Depending on the vial format, vials stay in the cooling chamber for 15-20 minutes.

