Energy and Water Use Assessment for Hot Air Sterilizer Equipment

CPAC Equipment, Inc. (CPAC), based in Leicester, NY, manufactures Class II, dry heat sterilizers, which are used in medical, dental and ophthalmology practices for sterilizing a variety of medical instruments. CPAC produces three lines of dry heat sterilizers.

**Challenge**
CPAC’s Cox RapidHeat™ Transfer (CRH) sterilizer functions using high velocity hot air as opposed to steam, which is the methodology commonly used by hospitals and dental offices worldwide. The dry heat method employed by the CRH sterilizer does not use water and therefore eliminates steam generation and drying cycles from the process, giving it the potential to reduce energy use, water use and cycle duration relative to steam sterilizers.

**Solution**
NYSP2I tested and evaluated the CRH sterilizer and two commercially available table-top steam sterilizers (Units 1 & 2). The three sterilization units (CRH, Unit 1, Unit 2) were compared based on several cycle characteristics, including energy and water use per cycle and per unit mass of instruments sterilized.

NYSP2I's GTAC assistance is intended to promote job creation and retention, economic development, and the introduction of innovative green products and technologies to the marketplace. The objective of this project was to perform an independent third party energy and water usage assessment of the CRH sterilizer, providing a comparative analysis with two conventional steam sterilizers.

**Results**
Once at operating temperature, and when run under standard operating conditions*, the CRH sterilizer exhibited the following performance results as compared to the two steam sterilizers evaluated:

**Observations:**
- Instrument corrosion was observed after steam sterilization, but was not observed after CRH dry heat sterilization.
- Residual moisture was observed on instruments after default drying time on steam sterilizer Unit 2.
- The CRH does not require water and can cycle small batches of instruments in a fraction of the time required by the steam sterilizers.
- CPAC is targeting the creation of 10 NYS jobs to expand the manufacturing of their CRH sterilizer.