

Direct Contact Heat Transfer using No. 2 Type-K Tellerette® Tower Packing

CASE STUDY # 300

A customer with a sulfuric acid reclamation facility needed to cool a saturated air stream for closed loop process operation. The 10,000 CFM air stream at 165° F. had to be cooled to 110°F. The existing equipment was only able to achieve 125°F. Cooling liquid availability included a large quantity of process water at 110°F and a smaller amount of city water at 55°F. Ceilcote APC recommended [retro-fitting](#) the existing tower with a multiple bed design using our No. 2 Type-K [Tellerette® Tower Packing](#). The customer's existing 72" diameter tower was modified to accommodate two packed beds with independent spray headers. The first bed is 6'-0" deep with a 450 GPM spray header utilizing plant water at 110° F. The second bed is 12" deep bed with a 40 GPM spray header utilizing city water at 55° F. The Tellerette packing was provided in glass filled polypropylene construction to provide additional structural insurance for possible temperature upsets to 200°F. Actual tested outlet gas temperature was 105°F exceeding design expectations by 5 degrees.

The Tellerette's unique design creates interstitial drip points that constantly renew the interface between the cooling water and the saturated air stream providing both optimum heat and mass transfer.

Product Literature:

- [Tellerette Bulletin 12-20](#)
- [Tellerette Tech Data 12-10.13](#)



Application	Cooling/Condensing
Exhaust Volume	10,000 ACFM
Exhaust Temperature	165°F saturated
Exhaust Pressure	3" W.C.
Contaminant	H2SO4 and particulate
Removal Efficiency	NA
Scrubbing Solution	Water only
Materials of Construction	Glass- filled Polypropylene