Advances in Fabric Selection for Dust Collection Equipment in WTE Plants

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Historically, when the primary dust collection vehicle on a boiler was a fabric filter, power generation facilities utilized woven fiberglass filter bags. The collectors were structural reverse air collectors with large filter bags (normally a 11.5” diameter by thirty feet in length) designed to operate at a 2:1 air-to-cloth ratio. These designs are dominant in the industry and offer an expected filter life of four to eight years. However, the trend in new installations of fabric filter collectors in the power generation industry is to install pulse jet collectors. This change is a direct result of cost considerations and the desire to use the baghouse to scrub gases with the addition of spray dryer atomizers (SDAs), selective catalytic reactors (SCRs), and selective noncatalytic reactors (SNCRs) before the dust collection system. Carbon, trona, and other injectables are utilized as well. While initial investment is lower for pulse jet collectors, long term operating costs may be higher due to costs of more frequent bag changes.

Pulse jet collectors offer several inherent advantages over the traditional reverse-air systems. First, the systems can operate at higher air-to-cloth ratios (3-4:1) that allow for a smaller housing footprint. In addition, pulse jet collectors employ filters with a felt construction which offer the potential for higher efficiencies than woven filter media used...