

MIST ELIMINATOR SEAL CUPS

In keeping with MECS's commitment to provide Total Quality plants and service to our customers, this Technical Brief is intended to serve as a reminder of the importance of ensuring mist eliminator seal cups are filled with acid in order to prevent excessive acid mist carry-over. Excessive mist carry-over can be detected by excessive duct drainage, or by a spotted stick test result. Faulty liquid seals are one of the most common reason for poor mist removal performance, and should be one of the first items to check when excessive mist carry-over is detected. Excessive acid mist carry-over can cause corrosion in downstream ducting and equipment, as well as pre-mature fouling of down-stream catalyst beds.

Mist eliminator installations use liquid seals to drain the collected liquid from the mist eliminator filter medium. A proper liquid seal is important to prevent mist-bearing gas from blowing through these drains, and re-entraining the mist that was collected back into the exit gas. There are various designs for these liquid seals; the most common of which are seal cups attached either from the tubesheet or from the individual elements.

Start up procedures and instructions should always emphasize the importance of filling these mist eliminator seal cups with sulfuric acid prior to start up. Methods for filling these seal cups vary from manually filling with a small portable container, to filling with pump and hose equipment. Regardless of the method used, the requirement is to ensure that each and every seal cup is completely filled to the top of the cup. Failure to completely fill just one seal cup can cause excessive mist carry-over.

In conventional strong acid towers, the mist eliminator seal cups are accessible enough to check to see if they are full of acid. However, in some acid plants, the seal cups are not readily visible. In these circumstances, where there is too much distance between the top of the installed packing and the mist eliminator seal cups to be able to visually verify that the seal cups are full, the seal cups can be filled to over-flowing from the top of the mist eliminator drain pipes to ensure the seal cups are completely filled. If the client wishes to simply verify that the seal cups are full in these towers where visual verification is difficult, it is possible to measure the level in each seal cup using a stainless steel bubble tube apparatus equipped with a manometer.

Note, as in any procedure involving strong sulfuric acid, necessary personal protective equipment and extreme caution should be taken to avoid personal injury.

Please contact your MECS representative should you require assistance with your specific installation or have any questions on the design or use of the bubble tube apparatus. Consultation will be provided at nominal and standard industrial rates.