



ANTIFOAM MATERIALS

Purpose: To minimize the amount of solids carried by the steam

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Many different factors - some chemical, some mechanical -- entrained boiler water in the steam leaving the boiler. "**Foaming**" is a general term applied to carryover, which is caused by objectionable concentrations of certain components of the boiler water. Foam aggravating substances such as excessive concentration of mineral solids, high alkalinity, or some types of organics) steam bubbles do not allow steam bubbles to collapse or coalesce as rapidly as they should. They rather collect as a relatively stable layer of foam on the surface of the water. When this foam layer becomes thick enough to invade the active steam separation section of the boiler, masses of foam are sucked off with the steam and carryover results.

Antifoam agents (polyalkylene glycol) are used specifically to speed up the coalescence of steam bubbles and thereby minimize the tendency for foam to accumulate in any part of the boiler. Antifoam treatment is often effective in preventing carryover caused by uncontrollable feed water contamination or by high concentrations of boiler water solids, which for physical or economic reasons can not be adequately controlled by normal blowdown.

Even when no foaming problem exists, the cost of antifoam treatment can be justified because of savings resulting from reduced blowdown and the maintenance of higher boiler water solids. Under certain operating conditions, some types of boilers may have a tendency to allow steam bubbles to collect in down comer tubes and thereby cancel part of the hydrostatic head required for proper circulation of water through the boiler. Antifoam treatment may improve circulation in such cases.

Antifoam may be beneficial by producing a higher quality boiler water that is ideal for uniform steaming and by encouraging steam bubbles to coalesce with the greatest possible speed. It also can minimize the carryover effects of mechanical or operating factors for which there is no immediately practical or economic remedy. Of course, the best approach to problems of this nature is through physical changes, which correct the difficulty at its source.

Whenever possible, antifoam should be fed continuously, although shot feeding is permissible if

additions are made at frequent intervals. Antifoam can be fed in solution along with other chemicals used for internal treatment of boiler water. Avoid over-feed of antifoam in that gross over-treatment may actually cause boiler water to foam.

Another consideration is that starting with a full boiler antifoam treatment program to boilers that contain foam may result in low water because of to the sudden coalescence of steam bubbles in certain banks of tubes. When the application is to be intermittent, feed about one-fourth of the required amount during the first hour. Follow this with one-third the second hour, one-half the third hour, three-fourths the fourth hour and the full treatment requirement for each hour there after. Unlike most other water conditioning chemicals, antifoam loses its effectiveness rather rapidly under boiler steaming conditions, therefore, feed antifoam continuously or in shots at frequent intervals. Take special precautions to assure that the antifoam treatment is not interrupted once it gets under way.