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Inspections, Compliance, Enforcement, and Criminal Investigations

Noise Control Mufflers for Bleeders on Retorts and Sterilizers

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**DEPT. OF HEALTH, EDUCATION, AND
WELFARE PUBLIC HEALTH SERVICE
FOOD AND DRUG ADMINISTRATION
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ITG SUBJECT: NOISE CONTROL MUFFLERS FOR BLEEDERS ON RETORTS AND STERILIZERS

Under the provisions of 29 CFR 1910.95, which is enforced by the Occupational Safety and Health Administration (OSHA), firms now must control noise to a specified "safe" limit as regards to the health of personnel. Noise control can be accomplished at three locations - at the source, in the path between the source and the personnel, and on the personnel. In the cannery retort room or in the drug processor's sterilizing area, noise control usually must include consideration for steam bleeders on the sterilizing or cooking equipment. Bleeders as defined in 21 CFR Part 128b, must remain open during the entire process and must be arranged in such a manner as to be capable of being observed for proper functioning by operating personnel. The high velocity steam emitting through the bleeder can produce a noise level intolerable to the human ear.

Many firms choose to control this noise at the source by adding a silencer or muffler to the bleeder valve. A typical muffler would have an appearance similar to those shown as follows:



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(image size 12KB)⁵

The bleed muffler functions much the same as the muffler on the exhaust of an automobile engine. To be effective as a sound silencer, it must decrease the exhaust gas velocity and absorb or cancel the sound waves while still allowing the free flow of exhausted gases. In the types depicted above, sound waves are cancelled by redirecting and subdividing the incoming steam exhaust into separate, smaller gas streams. The gas streams are directed towards the wall of the cylindrical chamber where they rebound to collide with opposing gas streams of equal force. With velocity greatly reduced, the steam is dispersed through openings on the cylindrical surface or on the end.

Some mufflers have baffles, packing or screening to provide a devious flow path. In this case, the muffling action produced is at the expense of appreciable increase in exhaust back pressure. Mufflers of this type should be avoided, especially in installations where the bleeder serves a dual purpose to include a means of condensate removal. The firm should know and be able to provide the type and exhaust flow performance characteristics of mufflers in use. The model number and name of the muffler manufacturer would be an aid in determining information on the device if the firm is either unwilling or unable of to specify the performance parameters.

There may be a number of ways to recognize an improperly operating muffler device. The firm should be able to explain their preferred method and describe how they regularly determine that bleeders are functioning while using mufflers. The investigator should be alert to recognize the improper device. Although the exhaust velocity has been reduced, condensing steam and/or condensate would still be evidenced in the same manner as a bleeder without a muffler. If the exhaust flow is in doubt, a piece of absorbent paper or an ink blotter (large enough to avoid personal injury) may be carefully placed in the discharge. Moisture formed on the paper and/or jet force of the stream would be an indication of exhaust flow. CAUTION: Do not touch the muffler or put your hand or fingers in the path of the discharge.

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