

CORRESPONDENCE

Residue in Halothane Vaporizer

To the Editor.—We have found that the halothane in our Copper Kettle vaporizers has become contaminated with a yellowish-brown substance. Upon evaporation, the halothane left a dark-brown, gummy residue which smelled strongly of thymol. These vaporizers had been in use with halothane for varying periods of time up to three years and had not been drained on any regular schedule.

About one liter of brownish halothane was drained and then distilled from a conventional all-glass distilling apparatus, yielding about 850 ml. of water-white halothane and an undistilled residue of about 25 ml. of dark brown liquid. (An attempt to decolorize this residue with activated carbon was unsuccessful.) Thymol, N. F., 0.01 per cent (w/w) was added to the distilled halothane. The discolored halothane, the distilled halothane, the residue and fresh halothane were compared by gas chromatography using a two-foot silicone gum rubber column at temperatures of 45° and 170° C. and a flame ionization detector. The major component of all samples was halothane. No substances with volatilities similar to halothane were found. A second, much less volatile substance was found in the discolored halothane and to a greater extent in the residue. The chromatogram of the distilled halothane was identical with that of the fresh halothane.

In an attempt to identify the brown substance present in the undistilled residue, a solution of thymol in halothane was prepared and compared to the residue by gas chromatography. The residue contained substances which appeared to consist of thymol and related compounds. The concentration of these substances was equivalent to about 0.1 per cent (w/w) of the original discolored halothane.

We believe that the brown substances consist of thymol and halogenated or oxidized thymol which had accumulated from the 0.01 per cent thymol added to halothane as a stabilizer. We do not believe that these substances

represent any hazard to patients but do find them undesirable from an esthetic viewpoint. They can be removed from vaporizers by an occasional draining.

We might note here that if any ether were present in the halothane it would distill over with the later fractions of halothane as the azeotrope whose boiling point (53° C.) is higher than that of halothane (50° C.). The ether would give a distinct peak appearing before that of halothane on the gas chromatogram.

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Gas Machine Notice

To the Editor.—I quote below an adaptation made from a warning on an air conditioning machine (industrial). The operator of the machine was continually plagued by people idling by, changing the settings of various controls. The original warning was given to me by a dental resident on anesthesia whose father knew the machine operator. With the few changes I made the warning is appropriate, I think, for anyone's anesthesia machine.

ACHTUNG!! Alles Touristen und Non-Technischen Lookens Peeper!

Das Machine Control ist Nicht for Gerfingerpoken und Mittengrabben. Oderwise ist easy Schmappen der Gasenwurks, Blowenfuse, und Poppentanken ur Sparksgermachen mit grosser Kerboomen! Der Machine ist Diggen by dem Experten only. Ist Nicht fur Gerwerken by Das Dummkopfen. Das Rubbernecken Sightseenen Surgeoners Keepen das Cottenpicken Handers in das Pockets. So Relaxen und Watchen das Gasbagen.

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