

upon to yield a certain amount of disinfecting gas. This, obviously, excludes the use of the wood alcohol spirit-lamp by health officers for complete distillation and thorough disinfection.

When the formaldehyde gas is liberated slowly, as in evaporation from the solution, the solidified formaldehyde is formed. To obtain the disinfecting gas from this solid substance (paraform), heat must be applied under certain conditions.

The formaldehyde on the market occurs in these two general forms—the 40 per cent. solution and the solidified. Of the solidified, there are advertised many patented forms, none of which are at present endorsed by this Department, for the reason that definite knowledge as to the strength of these various preparations is not yet clearly established, the amount claimed by dealers varying from one-half ounce to two ounces for thorough disinfection of 1,000 cubic feet of air space. It may be said, however, that owing to its greater convenience in form, in length of time in operation, expense, etc., the use of solidified formaldehyde for disinfection has with reason become popular.

When solidified formaldehyde is volatilised, at least two ounces per thousand cubic feet of air space should be used. While this is not the amount recommended by the manufacturers, in the absence of officially authorised tests, it is believed that not less than two ounces per thousand cubic feet should be used.

There have been various ways of liberating the formaldehyde gas from the solution; but since these ways exhibit degrees of efficiency, it may be well to discuss them briefly. It is not recommended that the 40 per cent. solution be merely exposed in pans. This liberation of the gas is too slow, and permits the formation of the solidified formaldehyde, which is useless until treated in a specific manner. Thus, is lost a large percentage of the disinfectant.

If an abundance of the solution be sprinkled on sheets hung on lines in the room, disinfection is accomplished. Owing to the fact, however, that much of the good of the formaldehyde in this method is lost before the gas reaches all infected parts of the room, not less than 10 ounces of the 40 per cent. solution should be used for each 1,000 cubic feet of air space. A sheet 5 feet by 7 feet will hold about 5 ounces of formaldehyde without dripping. This necessitates the use of at least two sheets as far apart as possible, for the disinfection of each ordinary room. The most satisfactory results are obtained in warm weather, or where the disinfection is carried on in an artificially heated room, at a temperature of 65 deg. or

better. In all disinfection with formaldehyde, one of the most important conditions for thorough penetration and disinfection is *rapid distillation* of the solution. A large quantity of formaldehyde and a shortened time of exposure will realise efficient disinfection with formaldehyde, while a smaller quantity and lengthened time of exposure will not.

Rapid distillation, with a still for disinfection, should yield at least eight ounces per thousand cubic feet of air space. For this there are various apparatus, differing in convenience, complexity, efficiency, and expense. Directions for the proper distillation or vaporisation of formaldehyde accompany the various apparatus.

One method requiring very simple apparatus is pouring formaldehyde upon permanganate of potassium. The only apparatus necessary is a flaring ten-quart tin pail. (Do not use an iron vessel.) Rapid chemical action is set up, and the vigorous foaming and boiling will throw a part of the mixture on the floor, unless the vessel is large and deep enough to prevent an overflow. A further precaution to protect the floor is to set the pail or vessel in a pan or tub. It is necessary to use precisely the recommended relative quantities of formaldehyde and potassium permanganate; if the proportion is disturbed, the chemical results are not the same, and the quantity of disinfecting gas liberated is altered. Care should be exercised, therefore, to obtain exactly for each thousand cubic feet of air space thirteen ounces of the permanganate of potash to one quart of the 40 per cent. solution. Less than the thirteen ounces for each 1,000 cubic feet cannot be used with good effect. The crystals of potassium permanganate should be finely powdered.

While this method requires an amount of the solution exceeding that recommended in the distilling process, yet it is believed that the saving in apparatus more than covers the cost. The other advantages of this method of disinfection plainly are: That the apparatus can be found in almost any household, and need not be transported from house to house by the disinfectant; that there is no danger from fire, the heat being generated by chemical action and not by a lamp or flame; that sufficient steam is given off by this heat to permit thorough disinfection; and that almost the entire quantity of formaldehyde gas evolved is yielded within a few moments; that the time of exposure need to be only about three hours. The action in this chemical combination is so sudden and so violent that everything should be made ready for disinfection before the fluid is poured upon the crystals.

[previous page](#)

[next page](#)