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SYNTHESIS OF HALOGENATED METHANES

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Trifluoromethane (Freon 23) is used as starting compound for synthesis of bromotrifluoromethane (Halon 1301) - a highly effective extinguishing agent for special purposes. The use of Halon 1301 should be limited due to its effect on the ozone layer, however, no equivalent substitute for this compound has been found till now.

Synthesis of trifluoromethane by catalytic hydrofluorination of chloroform is described. Chromium fluoride oxide supported on magnesium fluoride has been used as a catalyst. The influence of some reaction conditions, e.g. temperature and mole ratio of reactants on the course of the reaction and the yield of trifluoromethane are given. FTIR spectrometry has been used for determining the composition of the resulting reaction products.