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The Effect of Pressure on the Rate of Decomposition of Potassium Chlorate-Manganese Dioxide Mixtures

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remaining in the Fe_2O_3. When iron oxides are heated they lose their catalytic effect on the decomposition of $KClO_3$.

THE EFFECT OF PRESSURE ON THE RATE OF DECOMPOSITION OF POTASSIUM CHLORATE-MANGANESE DIOXIDE MIXTURES

F. E. BROWN AND H. M. McLAUGHLIN

It has been believed that pressure has no effect on the rate of decomposition of potassium chlorate. At 125° oxygen is evolved from a mixture of $MnO_2 : KClO_3 :: 1 : 2$ if the pressure is below 0.1 mm. of mercury but not at atmospheric pressure. At 175° oxygen is evolved from the same mixture at 2-3 mm. pressure of mercury but not at atmospheric pressure. At 300° the same mixture decomposes almost explosively at atmospheric pressure but will remain 90% undecomposed after seven hours at 320° if the pressure is above 300 atmospheres.

ACTION OF NATURAL ALKALI WATERS ON PORTLAND CEMENT

GEO. W. BURKE

Of the salts common to alkali bearing waters those of magnesium are the most active on cement. Magnesium sulphate solution in intimate contact with cement reacts very rapidly with practically all the calcium of the latter producing calcium sulphate and an insoluble compound of magnesium. The reaction results in a material increase in the weight and volume of the cement. Magnesium chloride rapidly reacts with cement replacing practically all the calcium by magnesium. Chemically equivalent amounts of calcium and magnesium are involved in the exchange. Slight decreases in the weight and volume of the cement accompany this reaction. The salts of sodium are less active than the corresponding ones of magnesium.

STUDIES ON THE COMMERCIAL PREPARATION OF CHLORATES

H. A. CHRISTOPHERSON

Sodium bicarbonate may be obtained very cheaply from the base of the Solvay tower, after the removal of the ammonium