

and the Canadian deposits at Grenville. In both of these localities the magnesite occurs as masses in limestone or associated sediments which have been rendered crystalline by the intense metamorphism to which they have been subjected.

PREPARATION OF MAGNESITE.

Magnesite is usually marketed in one or other of three forms—crude, caustic calcined, and dead burned.

Crude Magnesite. Crude magnesite, as the name implies, is the crude magnesium carbonate as produced at the mine with merely as much of the serpentine, quartz, dolomite, calcite, or other impurities removed as can be culled away in mining the material or by cobbing.

Caustic Calcined. When crude magnesite is calcined at a red heat (approximately 1,100 degrees centigrade¹) a product is obtained known as caustic calcined magnesite. This material consists of magnesia (MgO) in which about 2 to 4 per cent of carbon dioxide has been retained. It slakes in contact with water and combines with magnesium chloride to form a hard vitreous material known as oxychloride or Sorel cement.

Dead Burned. If, on the other hand, magnesite is calcined at a white heat (approximately 1,700 degrees centigrade)² a product known as dead burned magnesite is obtained. This material contains less than 1 per cent carbon dioxide, is exceedingly refractory, and chemically inert. It does not slake in air or in water, but tends to disintegrate in contact with steam.³

USES OF MAGNESITE.

The peculiar and varied properties of magnesite and its derived products have led to its use in a great variety of industries. Among the most important of these industrial applications are the following:

Refractory Material. Owing to the high fusion point and chemical inertness of the oxide of magnesium, magnesite is one of the principal minerals used in the metallurgical and other industries where highly refractory material is required. For this purpose dead burned magnesite is generally used either in the form of brick or sand. As brick it is used for lining open-hearth steel furnaces, welding, heating, and melting furnaces, copper converters, electrical furnaces, reverberatories, settlers, and furnaces for refining lead. In the crushed form, it is used for lining the bottoms of open-hearth furnaces, for lining rotary kilns, and in making crucibles and cupels. Caustic calcined magnesite is also used to a limited

¹ Morganroth, L. C., Bull. /

² Gowling, W., "The meta-

³ According to R. H. Young.

Min. Eng., No. 93, 1914, p. 2351.

the non-ferrous minerals," 1914, p. 10.

Metal. and Chem. Eng., vol. 12, 1914, p. 620.