

use the waste gases to make sulphuric acid, which in turn could be used to make ammonium sulphate for fertilizer purposes. There is now at Trail, B.C., the largest acid plant in Canada, a huge synthetic ammonia plant, an ammonium sulphate plant, an ammonium nitrate plant, a phosphoric acid plant and an ammonium phosphate plant. The final products are the nitrogen-bearing fertilizers, ammonium sulphate, ammonium nitrate and ammonium phosphate, which are chiefly for export. In 1934, a process was developed to produce elemental sulphur, but in late years this unit has not been in operation as all sulphur in the smelter gases is required for fertilizers.

The principal users of nitric acid in Canada, the explosives and ammonium nitrate industries, make their own requirements. Works for this purpose are in use by North American Cyanamid, Limited, at Welland, Ont., the Consolidated Mining and Smelting Company of Canada, Limited, at Trail, B.C., and at Calgary, Alta., and the Canadian Industries, Limited, at McMasterville, Que., Nobel, Ont., and James Island, B.C. Some of these concerns also make acid for sale to industrial users, as does the Nichols Chemical Company, Limited, at Sulphide, Ont. A very large part of the production facilities have been erected since the outbreak of the Second World War and it is estimated that the total output for all purposes amounted to 256,000 tons (42° Be) in 1946.

Muriatic or hydrochloric acid is made by Canadian Industries, Limited, at Hamilton, Windsor, and Cornwall, all in Ontario; cresylic acid is made by the Dominion Tar and Chemical Company, Limited, at Toronto, Ont.; hydrofluosilicic acid is made by the Consolidated Mining and Smelting Company of Canada, Limited, at Trail, B.C.; phosphoric acid is made by the latter Company as an intermediate in making phosphate fertilizers and also by the Electric Reduction Company of Canada, Limited, at Buckingham, Que.; stearic acid is made by the W. C. Hardesty Company of Canada, Limited, at Toronto, Ont., and the S. F. Lawrason and Company, Limited, at London, Ont.; naphthenic acid is made by Imperial Oil, Limited, at Montreal, Que.; oleic acid by S. F. Lawrason and Company, Limited; and fatty acids by the last-mentioned concern and by the Woburn Chemicals, Limited, at Toronto, and the W. C. Hardesty Company of Canada, Limited, at Toronto.

Glacial acetic acid is made by the Shawinigan Chemicals, Limited, at Shawinigan Falls, Que., which is one of the great chemical plants of the British Commonwealth. As early as 1903, the power developments at this point had attracted a carbide plant which has continued to operate ever since and which, during the First World War, was greatly expanded. The Allies were then in urgent need of acetone for T.N.T. and later for acetic acid for the manufacture of cellulose acetate, an essential compound for the treatment of aeroplane wings. A process was worked out by Canadian chemists by which these chemicals could be made synthetically from calcium carbide and, in 1916, at the request of the Imperial Government, the capacity of the carbide furnaces was enlarged and a large chemical plant was erected. At the close of the First World War the demand for acetone ceased and the Company soon discontinued its manufacture, but improvements in its process for making acetic acid and an increasing demand enabled the Company to expand its output and ship to markets in all parts of the world. Continuous research has led to the commercial production at this plant of many acetylene derivatives, and it is interesting to note that the Company started to make acetone again in 1936 by an entirely new process. In normal times Shawinigan Chemicals, Limited, is a large exporter, particularly of carbide, acetic acid, acetylene black and vinyl resins.