

PREPARATION OF THE BLUE OXIDE OF MOLYBDENUM AND OF METALLIC MOLYBDENUM.

BY ALLEN ROGERS AND F. H. MITCHELL.

Received May 8, 1900.

BY the action of stannous chloride on an acid solution of a molybdate, a blue precipitate is produced. It was the investigation of this precipitate, that led to the following process : To prepare the blue precipitate, dissolve 50 grams of molybdenum trioxide in a sufficient quantity of ammonium hydroxide, to make a clear solution; to this add about the same quantity of water, make slightly acid with nitric acid, and then dilute with about five times its volume of water. To this solution add from 15 to 25 cc. of a 10 per cent. solution of stannous chloride. The very heavy precipitate which forms settles, and should be washed several times by siphoning off the supernatant liquid. These washings should be made as quickly as possible, as the blue precipitate becomes hydrated on standing, thus giving a deep blue solution.

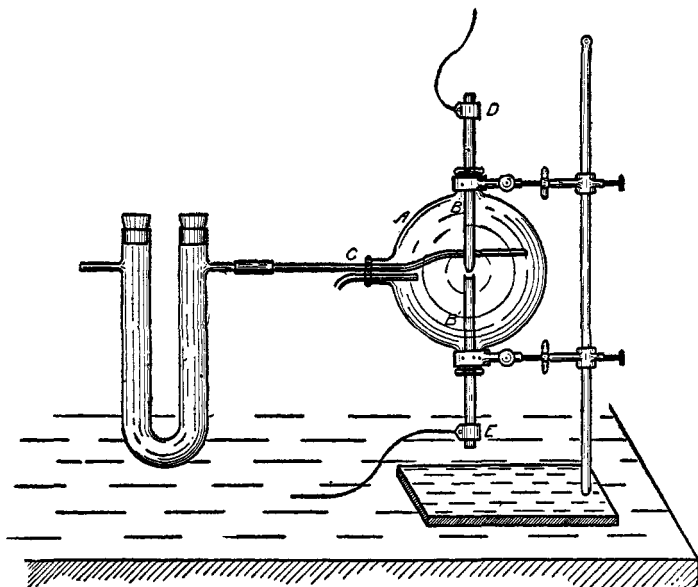
After washing, the precipitate is thrown upon a plaited filter, and allowed to drain. It is then removed from the paper, while moist, into an evaporating dish, placed in the oven and dried at 100° C. This precipitate seems to correspond to the oxide of molybdenum, Mo_3O_8 .

Place some of this oxide in a porcelain boat, and insert into an ignition tube, pass in hydrogen for a few minutes, then apply heat from a Bunsen burner for one hour, allow to cool, weigh and heat again for fifteen minutes, and continue heating until the weight is constant. The reduction takes from one hour to one and one-half hours, and may be hastened by moistening the oxide with a few drops of water. The molybdenum as prepared in this way is an ashen gray powder. The blue oxide is reduced more readily than the trioxide, under the same condition. In the electric furnace the blue oxide is rapidly reduced.

The accompanying figure illustrates a device by which we have been able to reduce various substances, and is very convenient in working with a small quantity.

The apparatus consists of a three-necked flask, A ; the carbons, B and B', are held in position by asbestos plugs. B' has a

cavity in the end, into which the substance to be reduced is inserted. At C is an inlet and an outlet tube, by means of which an atmosphere of hydrogen is obtained. Fill the cavity



in B', remove the air, connect D and E with B and B', by means of copper foil, and having the proper resistance, turn on the current, and allow to pass until the desired effect is produced. The oxide was reduced in forty seconds, and, prepared in this way, resembles the product of the electric furnace; that is, a dull steel gray mass, which is very hard.

UNIVERSITY OF MAINE, ORONO, ME.

SOD OIL, WOOL GREASE, AND DEGRAS.

BY ERASTUS HOPKINS.

Received May 14, 1900.

WHEN the tariff act of 1897, known as the Dingley bill, was made a law to govern the classification of imported articles, there appeared a paragraph in the act which, with an intent of definite designation, opened a question which became so involved that its final settlement was made only after litigation.