

Several modifications from a standard method are placed on file, to accommodate heavy liquid and other heavier than the substance whose specific gravity is required, which is not ordinarily, preferably three or four times as dense as the liquid. The heavy liquid to be used is then poured in, and the tube closed with a cork through which two holes have been bored. A smaller hole, made through one hole, and the other a larger one, is made through the other hole, both being bored. The liquid is allowed to fill the diluent, the latter is removed with a pipette, and the amount of the test liquid, and the temperature, are noted. The cork is then removed, and the liquid allowed to settle. The readings are made, the liquid allowed to settle, and the remaining indicator, and the weight of the indicator, is noted. The density readings are then plotted, and the curve drawn. The specific gravities of the indicators, and their densities, are noted, and the point at which its buoyancy is zero is marked on the plotting curve.

The curve, consisting of no more than three indicators, whose densities are usually chosen so that of the mineral fragment to be identified, using the curve obtained from them will furnish three points which determine the curve, but in practice it is better to obtain readings of ten or six indicators, some lighter and others heavier than the substance, whereby the curve can be more accurately drawn.

The method can be made as accurate as desired by employing a comparatively large volume of the original heavy liquid, since correspondingly large amounts of diluent will then have to be added in order to produce a large change in the density of the liquid, the curve will appear in the form of a straight line, and points upon it which indicate only a small difference in specific gravity will be widely separated.

The advisability of starting with as much as, say, 15 or 20 c.c. of the original liquid render this method more suitable for use with methylene iodide than with any of the aqueous solutions, such as Thoudlet's, which would have to be diluted with water, and subsequently concentrated again to be of any further use. In the case of methylene iodide, the question of volume is not a very serious matter, since the liquid solidifies at about 5°C. and can by this means be readily freed from the added benzene.

The test tube being closed, there is comparatively little loss of benzene by evaporation during the course of a determination, and since any evaporation which does take place proceeds at an essentially constant, or only slightly increasing, rate, the possible error due to this factor is about equally distributed throughout the plotted curve, and does not materially affect the accuracy of the method.