Beta tube in combination with a ratemeter. The mica window thickness of the Beta tube was 1–2 mg/cm². Results of measurements are as follows:

| Product | Net counts/minute | Per cent $U_3O_8$ equivalent | Per cent $U_3O_8$ equivalent from chemical analyses |
|---|---|---|---|
| No. 1 | 190 | 7.6 | 7.3 |
| No. 2 | 246 | 9.8 | 9.7 |
| Standard sample, 8.72 per cent $U_3O_8$ | 218 | — | — |
| No. 3 | 1668 | 82.2 | 82.4 |
| Standard sample, 63.19 per cent $U_3O_8$ | 1283 | — | — |

The results of the uranium standards are not in agreement as measurements were made on different days and the powder surfaces were at different distances from the mica window of the Geiger tube.

The method described above is also used by the Radioactivity Laboratory of the Geological Survey of Canada for quantitative radioactivity measurements of the concentrates from concentration tests of low-grade radioactive materials.

Unaltered, primary radioactive minerals commonly have a higher specific gravity than the gangue minerals, and can often be concentrated by gravity separation. However, where a concentration of the radioactive constituents is effected on low grade samples the amount of concentrate separated is usually too small for quantitative radiometric measurements by previous methods using metal trays with small depressions to hold the sample powder. The radioactivity of concentrates in such instances was calculated from the activities and weights of the middlings and tails, and the head sample. Several errors were thus introduced which can now be eliminated by a radiometric measurement of the concentrate itself.

## A METHOD FOR THE SEPARATION OF MINERAL GRAINS FROM SIZED PRODUCTS[1]

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In the course of laboratory investigations for the Radioactivity Division, Geological Survey of Canada, a quick and easy method has been

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developed for the separation of mineral grains from sized products. The grains are fastened to paper with drops of a solution of acetone and celluloid and collected in a dish of acetone. The method is useful for the preparation of pure mineral samples for chemical or physical examination. It is especially suitable for the selection of grains from a non-magnetic product whose constituents approximate the same specific gravity, because in this instance magnetic and gravity separations are not applicable.

The solution is prepared with 3.8 grams of clear celluloid and 50 c.c. of C. P. acetone, which are allowed to stand overnight in an air-tight container. After stirring the mixture vigorously, small drops of the liquid should be found to form hemispheres that dry whitish in approximately 30 seconds. The viscosity may be adjusted by evaporation, or dilution with acetone, and the mixture may be stored in the original container. The writer finds it convenient to have on hand several short lengths of glass tubing drawn to a fine tip at one end, with an opening 0.25 to 0.50 mm. in diameter.

Sprinkle a little of the sized product on a sheet of glazed paper 3 inches square. The individual grains should be at least 1 mm. apart. With an 8-inch length of rubber tubing attached to one of the pipettes, a little of the liquid is drawn by mouth into the pipette. A slight, steady pressure exerted by mouth will keep the liquid at the tip of the pipette; an increase in pressure will force it out in small drops. Examine the paper under a binocular microscope, and where a desired grain is seen allow a drop of the liquid to settle over the grain. This will secure the grain to the paper. It is not necessary to move the eyes from the binocular microscope until all the liquid in the pipette has been exhausted. As many as forty grains have been selected in one observation by this method.

At the end, the residual grains are shaken off the paper, and the sheet(s) immersed in a dish of acetone. The selected grains will drop free. Most of the acetone may then be poured off and recovered. The remainder will quickly evaporate leaving the selected sample of the pure mineral.