

Comparison chart for estimating volume percentages of constituents in rocks and concentrates in the range of 1.0 to 0.1 volume percent

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Abstract

Charts were prepared to aid the visual estimation of trace and accessory constituents in the range of 1.0 to 0.1 volume percent. The charts assist accurate and consistent estimates in this range for hand specimens, microscope slides, and heavy mineral concentrates. Applications include economic geology, sedimentology, and petrology.

Chart documentation

The visual estimation of the volume percent of accessory and trace minerals is important in economic geology, sedimentology, and petrology. Most workers tend to overesti-

mate small percentages (particularly in the case of highly conspicuous minerals like mica); comparison with these charts may help to reduce such errors.

Previous charts (Folk, 1951; Shvetsov, 1954; Terry and Chilingar, 1955) aided visual estimates of essential constit-

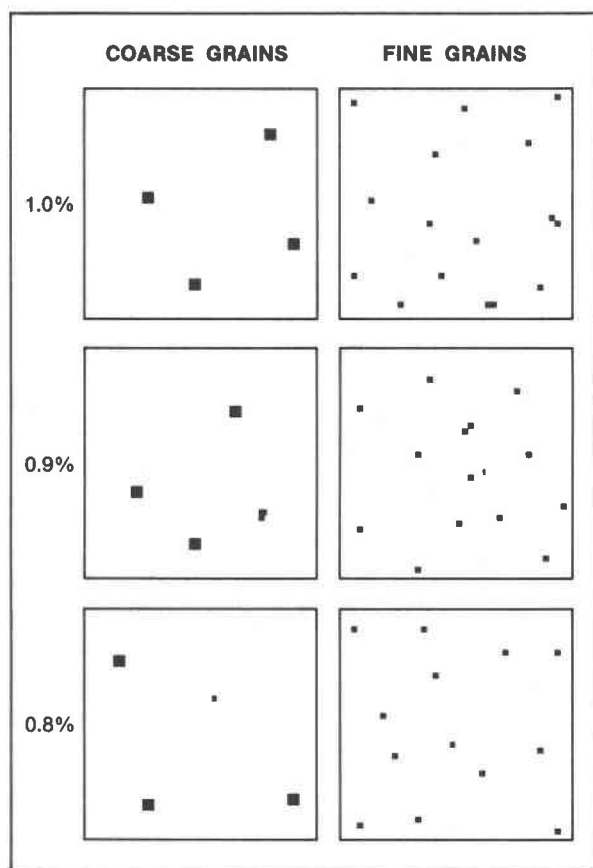


Fig. 1. Comparison chart for estimating percentage composition in the range of 1.0 to 0.8 volume percent for coarse and fine grains.

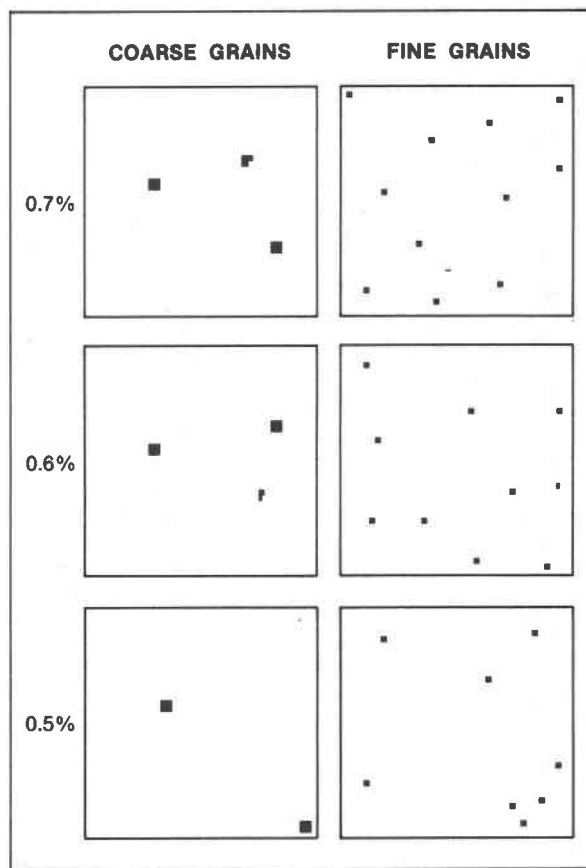


Fig. 2. Comparison chart for estimating percentage composition in the range of 0.7 to 0.5 volume percent for coarse and fine grains.

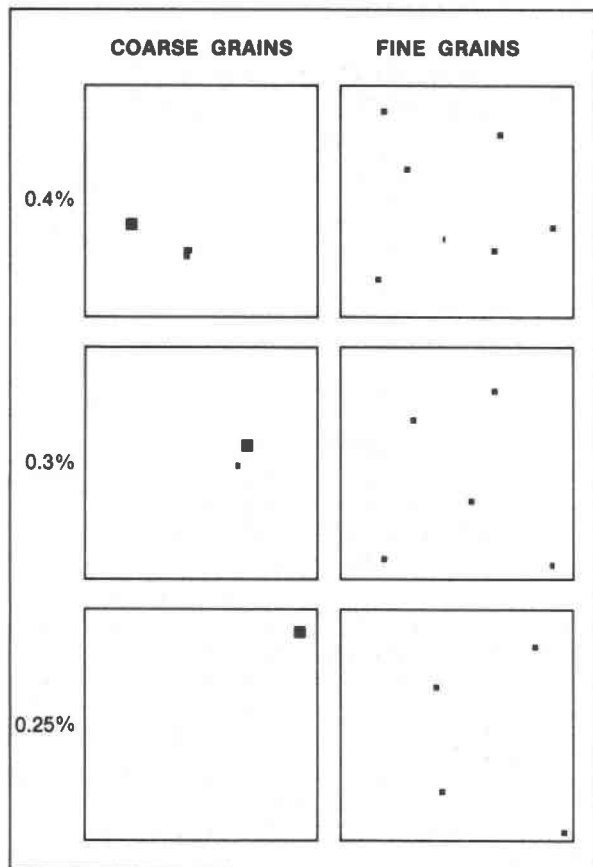


Fig. 3. Comparison chart for estimating percentage composition in the range of 0.4 to 0.25 volume percent for coarse and fine grains.

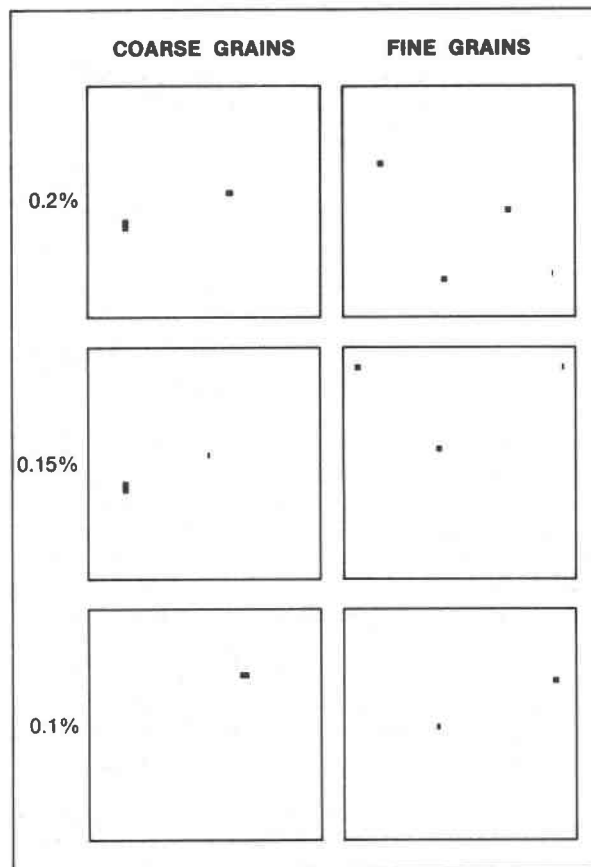


Fig. 4. Comparison chart for estimating percentage composition in the range of 0.2 to 0.1 volume percent for coarse and fine grains.

uents in the range of 1.0 to 50.0 volume percent. The accompanying charts representing various percentages of dark grains on a light background (Figs. 1–4) will aid the visual estimation of trace and accessory minerals in the range of 1.0 to 0.1 volume percent. The width of the original charts approximated common diameters of drill core, and of heavy mineral concentrate trays. Applications include drilling, stream sediment concentrate surveys, sedimentology, and petrographic studies where accurate and consistent values are required for trace and accessory constituents. The charts can be used with either hand specimens or microscope slides.

Readers may wish to prepare negative versions of the charts for light-colored crystals on a dark background. A limited number of these are available from the author.

The charts were drafted by shading the appropriate number of squares on 10 × 10 to 1/2-inch graph paper. The original illustrations contained 40,000 squares. The grains were distributed by a dartboard approach.

Acknowledgments

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