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NORMATIVE CALCULATION FOR SULPHIDES AND OXIDES

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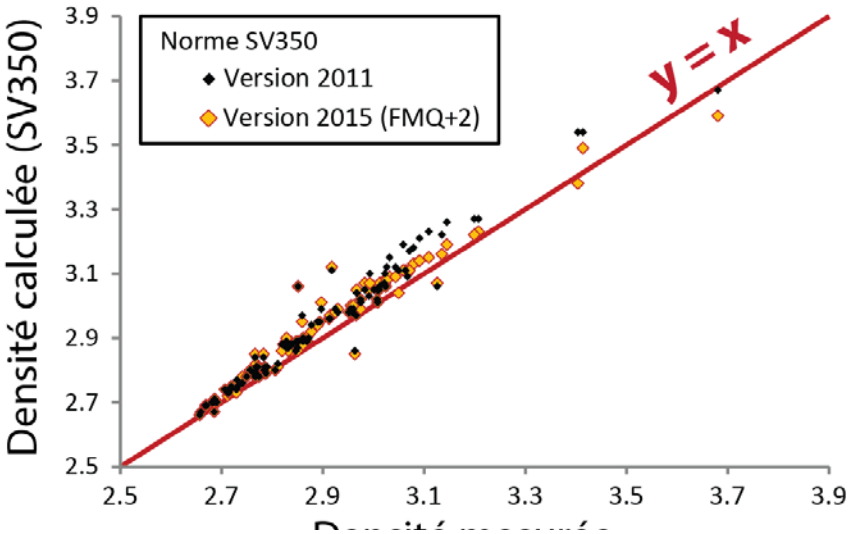
DETAILSThis project was a surplus project in the 2015-16 programming and was to be carried out as a short project, completed during the month of April 2016. Various circumstances did not allow for this project to be completed, for which only a feasibility study is available.



Improvement of the estimated density using a modified version of the model SV350. The CONSONORM_lg method.

Normative calculations are available for the silicate minerals but remain very rudimentary for sulphides and oxides. For this reason, it is generally difficult to precisely estimate the density of a sample from normative minerals. The density is therefore difficult to model and this parameter is usually measured only for a limited number of samples during a drilling campaign. This parameter is however essential for calculating resources; i.e. determining tonnage, which requires data on the volume of the deposit (3D models) and its weight (calculated from the known density of the rocks).

It is possible to improve the calculation of the oxides using a pseudo-section (data of frost and Lindsley 1991) and by adding constraints to the estimates of oxygen fugacity calculated from the standard CONSONORM_lg (Trépanier et al. 2015). A test performed using this methodology improved the estimated density (**attached figure**). With respect to the calculation of normative sulphides, it is probably feasible but will require the compilation of a significant amount of documentation.

SUMMARY SHEET

Objectives	• Improve the calculation of oxides as proposed by the CIPW standards and CONSONORM_lg. • Compile the pseudo-sections and other published thermodynamic data that will serve as a basis for the improvement of normative calculations. • Test the influence of inaccuracies in the estimate of the FeO ratio/Fe_2O_3 on the modelling of density. • Put in place a normative calculation for sulphides.
Results & innovations	• The feasibility study has shown that the proposed approach could improve density estimates.