Sample Preparation according to Ian Devereux: an unofficial guide

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This is a summary of the concepts, ideas, and experiences of Ian Devereux, recorded as a reference in the late noughties shortly prior to his retirement. His 14 typed pages summarised his insights after 40 years of leading and growing Rocklabs into the world leader in Sample Preparation Equipment design, manufacture, and supply. This mixture of facts, observations and opinions are offered without reference to complex technical analysis. The author intends this paper as a tribute to one of the pioneers of our industry and hopes that it may be used as an accessible introduction to the concepts and importance of the field of Sample Preparation. In memory of Ian Devereux MSc, PhD, FNZIC, AMAusIMM (11 Feb 1940 – 25 April 2020).

Sample preparation is a very broad subject. If you try putting these two words into Google you get 579,000,000 entries! In our domain, we typically restrict the topic to include the minerals and metals industry which includes mineral exploration mining, smelting, refining and research.

Sample Preparation is the middle step in the process that covers taking the sample, preparing the sample and analysing the sample. It is vital for a good understanding of Sample Preparation that you also understand the procedures and processes of the other two activities. If everything is not done well, the result achieved will be of doubtful value.

It is very common for a laboratory to receive a sample for analysis without any knowledge or understanding of how the sample was taken and whether it is truly representative of the lot of material that it comes from. "We do the preparation and analysis. This is our responsibility. It is someone else's job to ensure the sample is a good one," are typical attitudes. In part they are correct, but a laboratory must be careful if they have been asked for a precise analysis on a sample that may not be representative and then an argument follows as to why the result is in error. Laboratories are often accused of mistakes when then real culprit is a poor sample. As designers and manufacturers, we need to do all we can to ensure the sample processing equipment is as representative as possible.

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