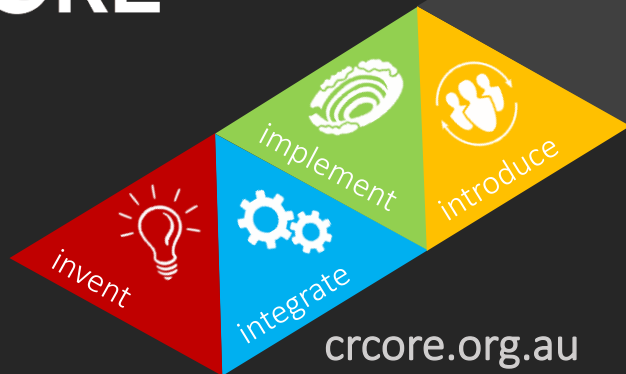


Validation of mass balance and model calibration in IES (P9Q AR)

Project number: P3-007
 Program Coordinator: Greg Shapland
 Project Leader: Gordon Forbes
 Timing: April 2019 to August 2020
 Participants: University of Queensland, JKMRC, CRC ORE



PROJECT OUTCOMES

Mass balancing results in IES was shown to be comparable to those obtained using JKSimMet, JKSimFloat, and Excel for simple circuits. Some further development is required to solve more complex circuits.

The calibration functionality in IES has been compared to that of JKSimMet for twenty JKSimMet models and tested on five P9Q models. The model calibration results in the two systems were generally found to be comparable.

The IES mass balancing and model calibration functionality has been shown to have progressed from TRL3 to TRL5.

RESEARCH COLLABORATION

The Integrated Extraction Simulator (IES) is the simulation platform through which researchers in the AMIRA P9 project deliver their research models such that they are readily usable by researchers and sponsors. CRC ORE in collaboration with the Julius Kruttschnitt Mineral Research Centre (JKMRC) developed the IES platform with CRC ORE maintaining the platform.

The team at the JKMRC has extensive experience developing, using and validating minerals processing models. This project draws on their knowledge and experience in using JKSimMet and JKSimFloat to validate the mass balancing and model calibration function in the IES platform.

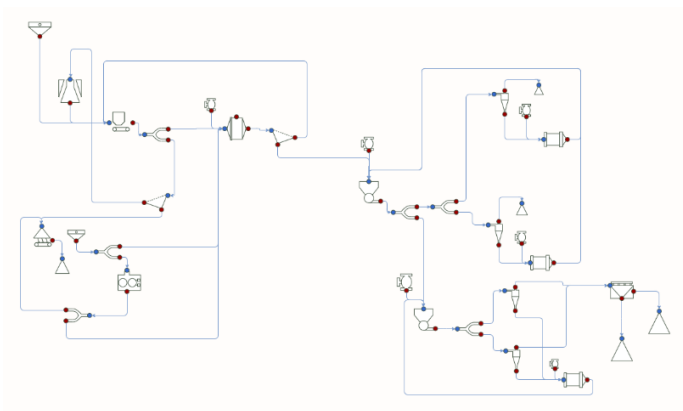
Close collaboration between the JKMRC team and the IES development team at CRC ORE has ensured the successful completion of this project. This has been achieved through the early identification of issues and additional feature requirements in IES and their prompt resolution and implementation by the IES development team.

BACKGROUND TO THE PROJECT

The AMIRA P9 research project aims to provide the seamless integration of process simulations across grinding, classification and separation.

In order to effectively enable researchers, sponsors and end-users to maximise the outcomes from utilising the IES platform, it is necessary that the IES platform can provide the users with both mass balancing and model calibration functionality. Without this functionality, the model development process is more complicated.

To ensure that the mass balancing and model calibration functionality performs as desired and meets the expectations of end users, it is necessary to test this functionality explicitly. The validation of mass balance and model calibration in IES project has taken a systematic approach to test this functionality in IES and comparing the results to those of other systems such as JKSimMet, JKSimFloat, and Microsoft Excel.



Comminution circuit in IES used for testing mass balancing functionality.