**Marks submitted to the IB by the school**

**Research design** 5/6  
*The research question is clear within a specific background context with appropriate chemistry. Variables are identified; values are given. The methodology is clear, concise and reproducible, except for some confusion over the percentage values given for concentration in the methodology, which should have been converted to SI units throughout.*  
Overall best fit: **5−6 in the first two descriptors, 3−4 in** **the** **last descriptor**, **as there is some ambiguity and omission.**  
  
**Data analysis:** 5/6  
*The data is clearly presented with uncertainties and units given. The significant figures in the data are mostly appropriate, but there are some errors with consistency throughout the tables. The processing of the raw data to give the concentration values is appropriate and accurate. The bar charts help to visualise the results. Uncertainty propagation is explained. The final average values are presented with calculated uncertainties and are given to an appropriate number of significant figures.*  
Overall best fit: **3−4 in** **the** **first descriptor, as data is not always precise. 5−6 in all other descriptors.**

**Conclusion:** 5/6  
*The conclusion is clearly described, and there is some justification with respect to the precision and accuracy of the methods. The conclusion is fully consistent with the analysis presented and follows the interpretation of processed data, including uncertainties. However, there is little consideration for the unreliability of the literature value in this case.*  
Overall best fit: **5−6 in all descriptors.**

**Evaluation:** 4/6  
*Specific methodological weaknesses and limitations are identified and explained. The relative and directional impact of the limitations is not always discussed. Realistic improvements to the investigation are sometimes given, but not always explained.*  
Overall best fit: **3−4 in all descriptors.**

**Total mark submitted by school:  19/24**

**Mark awarded by the IB after external moderation and scaled to a maximum mark of 20.**

**15**/20

*The moderator felt that the evaluation criterion only achieved 3 marks (rather than the 4 awarded by the school). They felt that several weaknesses were generic, rather than specific to the methodology. And that there could have been more explanation. This gave an overall mark of 18/24, which scaled to 15.0/20.*