On the dispersion stability of the Singapore slime, and its relation to the Malaysian tin mining slime

Tan Boon Kong*
Jabatan Geologi, Universiti Kebangsaan Malaysia, Bangi.

This short presentation gives some data on the physical, chemical and mineralogical properties of the Singapore slime, in an attempt to account for its dispersion stability. For further details on the Singapore slime, the two publications listed below can be referred to.

The dispersion stability of the Singapore slime can be attributed to its high clay content, in particular the very significant presence of surface-active montmorillonite. The pore fluid chemistry also shows a predominance of Na^{+} over other cations, a condition which is conducive to the dispersion of the clay particles. Measured values of the Zeta-potential range from -35 to -57 mV, indicating that the Singapore slime has moderate to very good dispersion stability.

In comparison, preliminary studies of the Malaysian tin mining slime in the Kuala Lumpur area shows the lack of surface-active montmorillonite, and the predominance of soluble Mg^{2+} over other cations. These major differences would have great implications especially with regard to the applicability of possible chemical treatment methods for the two slimes.

References

1) R.N. Yong, B.K. Tan, C.S. Kim, C.K. Chen & J. Sellapah, 1985. Characterization studies of the Singapore clay slurry (Slime). Geotechnical Engineering, Journal of the Southeast Asian Geotechnical Society, Vol. 16, no. 2, Dec. 1985, pp. 139-166.

2) R.N. Yong, C.K. Chen, J. Sellapah & C.S. Kim, 1985. Stabilization of clay slurry at Tampines, Singapore. Proc. 3rd International Geotechnical Seminar on Soil Improvement Methods, Singapore, 27-29 Nov. 1985, pp. 113-125.

*The author is grateful to Prof. R.N. Yong, William Scott Professor of Civil Engineering & Applied Mechanics and Director, Geotechnical Research Centre (GRC), McGill University, Montreal, Canada, for the opportunity and financial support to work on the Singapore Slime Project during his recent sabbatical leave at GRC.

******