Characteristic variation of precipitate in limestone layer

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Extended Abstract

In successive alkalinity-producing systems (SAPS), precipitate generated on limestone layer tends to be increased over time, deteriorating the permeability of SAPS and reducing the treatment efficiency of mine drainage as well as the life of SAPS. A flushing system, as the alternative to deal with it, has been emerged recently but the study on characteristics of precipitate that travels in pipe has still remained far behind. This study is intended to identify the characteristics of precipitate generated on limestone layer and thus, the growth test of precipitate was conducted and consequently, changes to the type of precipitate and physical & chemical properties were identified. Besides, minimum transport velocity of precipitate which is the major design factor in flushing system was estimated through the test.

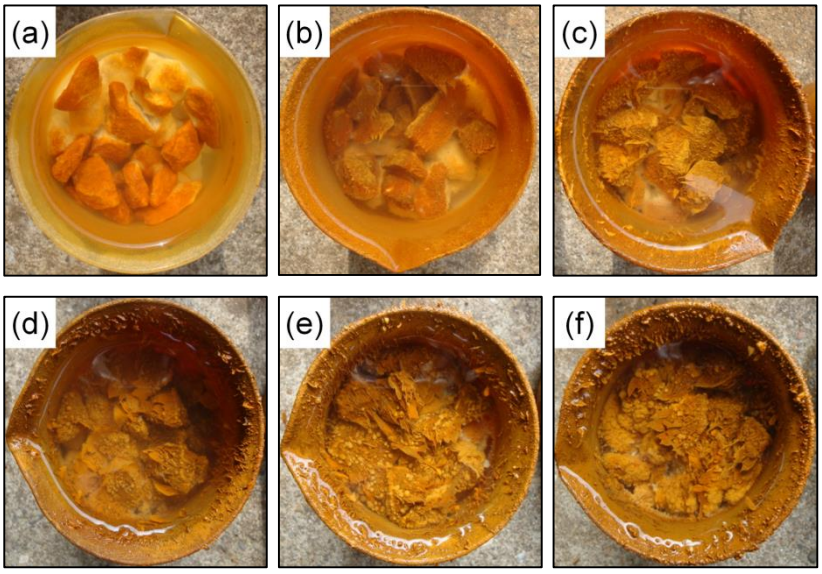

Figure 1 *Images of samples obtained from precipitation experiment during six months; showing each sample spending to one week (a), two weeks (b), three weeks (c), four weeks (d), five weeks (e), and six weeks (f).*

Table 1 *Minimum velocity for precipitate transportation of each precipitation type acquired by laboratory experiments.*

Precipitation type	Diameter (mm)	Critical velocity (m/sec)		
		Measured value	Oroskar and Turian (1980)	Thomas (1979)
Membrane	4.2	0.050	–	–
Botryoidal	2.5	0.063	0.063	0.074
Fine grain	0.2	0.120	0.120	0.540

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