

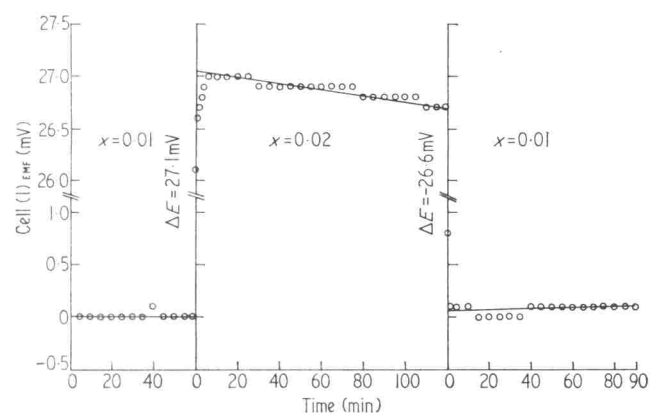


Figure 3 Variation of cell (1) EMF with time and changes of electrolyte at 20°C

the other reservoir. The variation of cell (1) EMF with time and solution changes is shown in figure 3. The cell (1) EMFs vary with time in some instances at times greater than 5 min after solution change and this behaviour may be expected if the washing is not efficient. The changes in the EMF of cell (1), obtained by extrapolating EMF-time curves to the instant of transfer and given in figure 3, indicated also that washing was not 100% efficient. If replacement with fresh solution were complete, the EMF change for the example given in figure 3 would be 27.5 mV (0.01–0.02 mol kg⁻¹ HCl) at 20°C compared with the observed values of 27.1 and –26.5 mV for the first and second solution changes respectively. These experimental values were found using the cell container with the push-in PTFE liners, cell volume 1 ml, and were in error by 1.4 and 3.6% of the expected EMF change. Without the push-in liners, the first and second solution changes gave an error of 6.1 and 8.0% respectively in the EMF change. The introduction of the push-in liners therefore increased the washing efficiency by 5%. Further small refinements should lead to an efficiency of always greater than 99% where non attainment of ideal washing would be insignificant. In any event, the measurement of cell (1) EMF changes ensures that the experimenter could determine the composition of the solution after washing at any point in the experiment if necessary.