$$y_i = b + M(\lambda_i)$$
$$+ \sum_{\vec{h}} \alpha_{\vec{h}} \exp\left[(-4\ln 2)(d_i - d_{\vec{h}})^2/S_i^{\,2}\right]$$
$$+ v \sum_{\vec{h}'} f_{\vec{h}'} \exp\left[(-4\ln 2\ (d_i - d_{\vec{h}'})^2/S_i^{\,2}\right] \qquad (1)$$

where b is the time independent background, λ_i is the neutron wavelength scattered into channel i, $M(\lambda_i) = \beta d_i^{-\gamma} e^{-\delta/\lambda_i^2}$ is a Maxwellian intensity function with three variable parameters β, γ, δ used to fit the time-dependent background, d_i is the wavelength scattered into channel i divided by the factor $2\sin\theta$ where 2θ is the scattering angle (30 or 60 deg), and S_i is the instrumental linewidth at half peak height for each channel. The symbols $\vec{h}$ and $\vec{h}'$ stand for the Miller indices ($hk\ell$) for the KCN peaks and for the Al_2O_3 peaks respectively which might be present in the pattern. The calculated plane spacings for KCN and Al_2O_3, $d_{\vec{h}}$ and $d_{\vec{h}'}$ respectively, are determined from the lattice parameters which are the only adjustable parameters which affect the peak positions. $\alpha_{\vec{h}}$ and $f_{\vec{h}'}$ are the peak amplitudes of the KCN peaks and the Al_2O_3 peaks respectively, and v is an overall intensity factor for Al_2O_3. The KCN peak amplitudes $\alpha_{\vec{h}}$ are treated as variable parameters while the relative amplitudes $f_{\vec{h}'}$ for Al_2O_3 are held fixed at values determined from a pure Al_2O_3 diffraction pattern. Pb peaks, if present, are treated in the same manner as Al_2O_3 peaks. This allows an accurate subtraction of Al_2O_3 and Pb peaks from the pattern which in all cases were very small at the 60^o scattering angle. In some regions of the diffraction pattern the intensities obtained from