

# Clay Pottery

Errington Reay & Company Ltd operate a fireclay pottery at the Tyneside Pottery Works, Bardon Mill, near Hexham. The pottery makes traditional heavy clay pots finished with salt glaze for frost protection.

Wet clay goods are formed in the pottery, stacked the in the coal fired beehive kiln and gradually heated to 1200°C over 2 days. Salt is injected into the kiln near the end of the firing cycle adding a protective glaze.

Emission tests at the site found that short term Hydrogen Chloride (HCl) emissions were around 2,500mg/m<sup>3</sup> during the salt injection process.

The pottery is a small family owned traditional process . The cost of fitting chemical scrubbing plant to treat these short term peak emissions could be prohibitive. Errington Reay commissioned a study to help them determine how to reduce the emissions from the kiln.

This included a dispersion modelling study to predict the likely near ground level concentrations of HCl in air from the kiln. The computer model considered local terrain and 5 years of hourly meteorological data from Spadeadam.

The worst case near ground level concentrations were predicted to occur when the wind is from the east at wind speed with an hourly average wind speed of 7– 8m/s.

The proximity of the pottery building causes the plume to be entrained within the re-circulating wake downwind of the release. The weather conditions which cause the worst case conditions occur very infrequently, typically 1 hour per year.

The study concluded that while the emissions were unlikely to cause air quality standards to be exceeded, the process should be modified to reduce the impact.

These measures concentrated on reducing emissions at source rather than expensive “end-of- pipe” solutions. Errington Reay have now improved salt injection techniques and use different salts to reduce the emission of HCl.

These measures have reduced the peak emissions further reducing the risk of any air quality impact.

Subsequent emission tests have confirmed significantly reduced emissions without impairing product quality.

