CastileSr.methods.txt

Sample Preparation and Analysis

The anhydrite samples were dissolved in ultra pure water, filtered

and precipitated as CaCO3 by adding a 1M NaCO3 solution. The CaCO3 was

dissolved in HNO3 and the strontium separated using a strontium specific

resin. The isotope ratios were measured on a second order, double focusing

mass spectrometer with a 60degree, 13 inch (33.0 cm) radius of curvature

magnetic sector and a 91degree, 15.8 inch (40.1 cm) radius of curvature

electric sector. Masses 85, 86, 87, and 88 were measured simultaneously in

four separate faraday cups. The 87Sr/86Sr values have been normalized to

86Sr/88Sr = 0.1194. The isotope ratio of the unknown samples were measured by

comparison to a standard (Denison et al., 1998).The standard used in most

of the

measurements was NBS/987 for which a value of 0.710240 has been assumed. All

samples are reported as the difference between modern seawater (delta SW).

We use only

the sw difference notation in the text.

delta SW = (87Sr/86Sr unknown - 87Sr/86Sr modern seawater) x105

More than 100 measurements of modern seawater and NBS/SRM987 yield a

weighted mean of +106.70.3 for the NBS SrC03 standard. All published

results have

been normalized to these values.

Reference:

Denison, R.E., Kirkland, D.W., and Evans, R., 1998, Using strontium

isotopes to determine the age and origin of gypsum and anhydrite beds: The

Journal of Geology, v. 106, p. 1-17.