MINERALOGICAL REPORT: No. MIN 0308/036
INTERNAL REPORT

WORK REQUESTED BY: **Sarah Newton**

ON BEHALF OF: **Valencia**

DATE: **14th March 2008**

INVESTIGATOR: **JM Richards**

TITLE: **XRD Analysis and Mineralogical Investigation of a Leached Residue Sample from Valencia.**

1.0 INTRODUCTION

A single leached residue sample from Valencia was submitted for routine mineralogical identification using X-ray diffraction analysis and microscopy. A description of the general mineralogy with particular reference to any sulphide or carbonate minerals that might be present was also requested. The sample was labeled:

LA044995 Leached Residue

2.0 RESULTS

2.1 XRD Analysis:

The mineralogical composition of the samples was determined by selecting the best-fitting patterns from the ICDD database to the measured diffractogram, using Panalytical X'Pert Highscore analytical software. The result of the XRD analysis is presented in Table 1, and the annotated diffractogram follows.

Table 1: Semi-quantitative Results from XRD Analysis and Microscopy

Mineral	Approximate Formula	LA044995 Leached Residue
Quartz	SiO_2	++
Microcline	$KAlSi_3O_8$	++
Plagioclase	$(Na,Ca)AlSi_3O_8$	+
Biotite	$K(Mg,Fe)_3AlSi_3O_{10}(OH)_8$	+
Chlorite	$(Mg,Fe)_6(Si,Al)_4O_{10}(OH)_8$	=
Pyrite	FeS_2	<1
Rutile	TiO_2	trace
Goethite	FeOOH	trace

2.2. Microscopic Investigation:

LA 044995 (Leached Residue):

The sample consists mostly of quartz, microcline and plagioclase feldspar. There are a number of very fine grains (ie., less than 25µm in size) of sulphides and oxides present but in total these amount to probably about 1% or less of total sample. The oxides and sulphides consist primarily of rutile and pyrite and iron oxyhydroxides (goethite). No carbonate minerals were identified as part of the mineral assemblage. Pyrite can be digested by HNO_3 but not HCl, while goethite is resistant to both acids.

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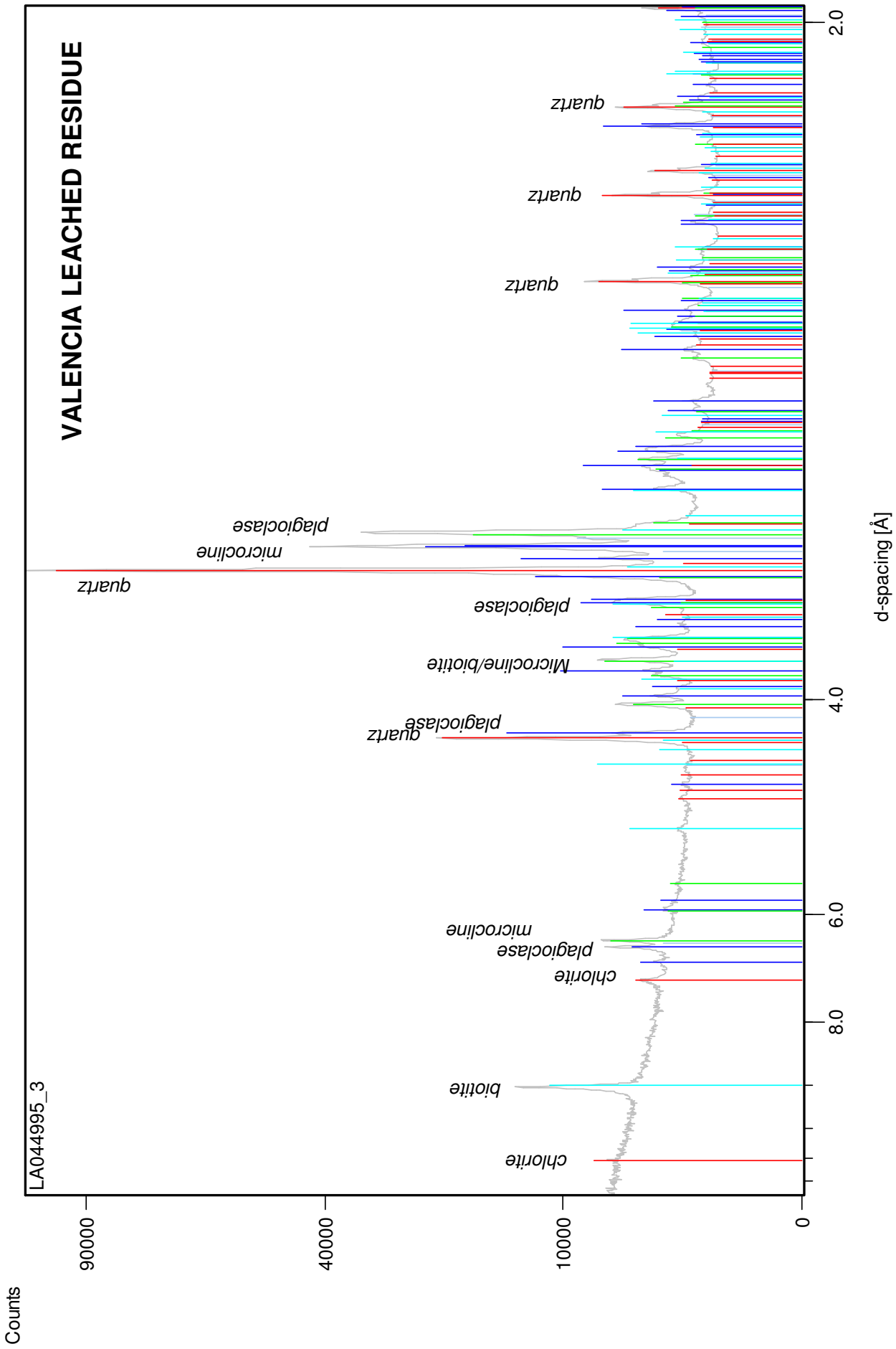
Annotate XRD Pattern Of Valencia Leached Residue