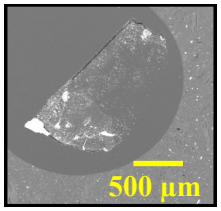
Smithsonian
National Museum of Natural History

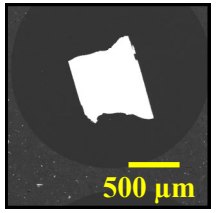
REE Phosphates: NMNH 168484 - 116499

$CePO_4$ NMNH 168484



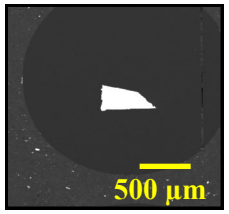
Ce	59.60
PO_4	40.40
TOTAL	100.00

$DyPO_4$ NMNH 168485



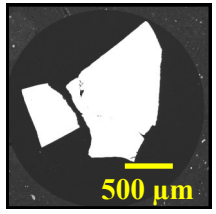
Dy	63.11
PO_4	36.89
TOTAL	100.00

$ErPO_4$ NMNH 168486



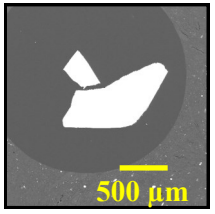
Er	63.78
PO_4	36.22
TOTAL	100.00

$EuPO_4$ NMNH 168487



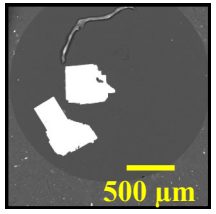
Eu	61.54
PO_4	38.46
TOTAL	100.00

$GdPO_4$ NMNH 168488



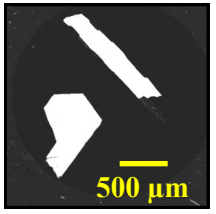
Gd	62.34
PO_4	37.66
TOTAL	100.00

$HoPO_4$ NMNH 168489



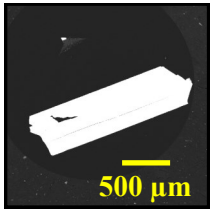
Ho	63.45
PO_4	36.55
TOTAL	100.00

$LaPO_4$ NMNH 168490



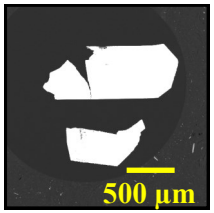
La	59.39
PO_4	40.61
TOTAL	100.00

$LuPO_4$ NMNH 168491



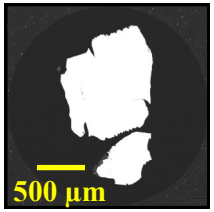
Lu	64.81
PO_4	35.19
TOTAL	100.00

$NdPO_4$ NMNH 168492



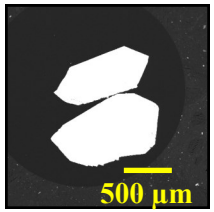
Nd	60.30
PO_4	39.70
TOTAL	100.00

$PrPO_4$ NMNH 168493



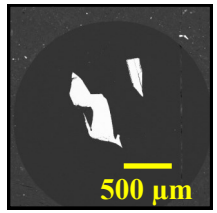
Pr	59.73
PO_4	40.27
TOTAL	100.00

$SmPO_4$ NMNH 168494



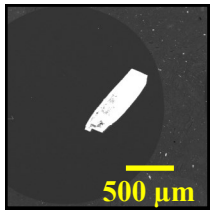
Sm	61.28
PO_4	38.72
TOTAL	100.00

$ScPO_4$ NMNH 168495



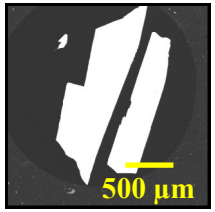
Sc	32.12
PO_4	67.88
TOTAL	100.00

$TbPO_4$ NMNH 168496



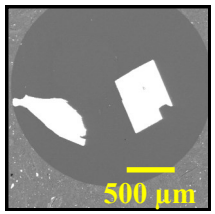
Tb	62.59
PO_4	37.41
TOTAL	100.00

$TmPO_4$ NMNH 168497



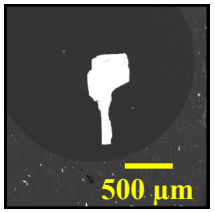
Tm	64.01
PO_4	35.99
TOTAL	100.00

$YbPO_4$ NMNH 168498



Yb	64.56
PO_4	35.44
TOTAL	100.00

YPO_4 NMNH 168499



Y	48.35
PO_4	51.65
TOTAL	100.00

Standard Specifics:

Grain sizes available are highly variable as the materials are unsieved.

Many of these have significant lead contamination (see Donovan et al., 2002, 2003).

References:

Donovan, J. *et al.* (2002) Contamination in the rare-earth element orthophosphate reference samples. *J. of Research of NIST, 107, p. 693-701.*

Donovan, J. et al (2003) A Re-examination of the Rare-Earth-Element Orthophosphate Standards in Use For Electron Microprobe Analysis. Can. Min. vol. 41, pp. 221-232.

Jarosewich, E. and Boatner, L. (1991) Rare-earth element reference samples for electron microprobe analysis. *Geostand. Newslett. 15 (2), p. 397-399.*