

## Laser wavelength

|                         | 325nm   | 442nm   | 532nm   |
|-------------------------|---|---|---|
| <b>CePO<sub>4</sub></b> |  Broad-band emission distinct emission in LuPO <sub>4</sub> and YPO <sub>4</sub> |  Emission outside observed spectral range            |  Emission outside observed spectral range  |
| <b>PrPO<sub>4</sub></b> |  Absorptions <750nm no distinct emission   |  Distinct emission lines                             |  Inefficient excitation  |
| <b>NdPO<sub>4</sub></b> |  Absorptions <750nm distinct emission lines >750nm                               |  Inefficient excitation distinct emission ~900nm     |  Distinct emission lines   |
| <b>SmPO<sub>4</sub></b> |  Absorptions <750nm weak emission lines ~600nm                                   |  Distinct emission lines                             |  Distinct emission lines few emission lines below observed spectral range          |
| <b>EuPO<sub>4</sub></b> |  Distinct emission lines   |  Distinct emission lines                             |  Distinct emission lines   |
| <b>GdPO<sub>4</sub></b> |  Emission below observed spectral range  |  Emission below observed spectral range              |  Emission below observed spectral range  |
| <b>TbPO<sub>4</sub></b> |  Distinct emission lines   |  Distinct emission lines                             |  Distinct emission lines few emission lines below observed spectral range          |
| <b>DyPO<sub>4</sub></b> |  Distinct emission lines  |  Distinct emission lines                            |  Few distinct emission lines several emission lines below observed spectral range |
| <b>HoPO<sub>4</sub></b> |  Absorptions <700nm weak emission lines >700nm                                 |  Absorptions <600nm distinct emission lines >600nm |  Distinct emission lines   |
| <b>ErPO<sub>4</sub></b> |  Absorptions <750nm distinct emission >750nm                                   |  Distinct emission lines                           |  Distinct emission lines few emission lines below observed spectral range        |
| <b>TmPO<sub>4</sub></b> |  Absorptions <750nm no distinct emission                                       |  Absorptions <750nm no distinct emission           |  Absorptions <750nm no distinct emission   |
| <b>YbPO<sub>4</sub></b> |  Distinct emission lines   | No data   |  Distinct emission lines   |

 Successful REE emission line excitation

 Measurement conditions not appropriate for REE emission line excitation and/or inappropriate detection range

 Significant REE absorption features in broad-band emission