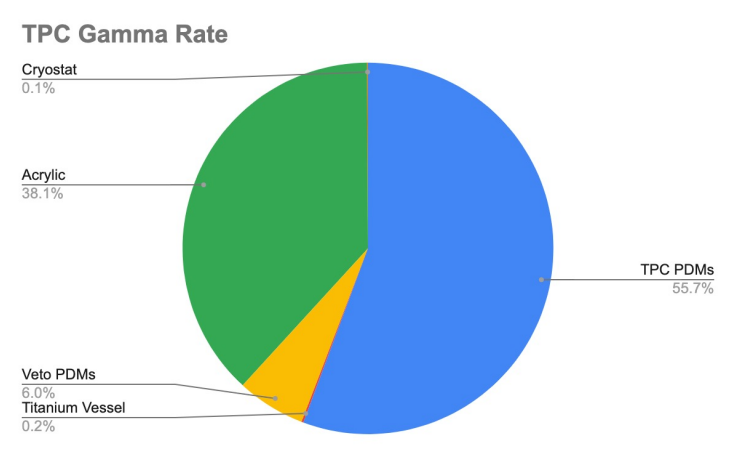
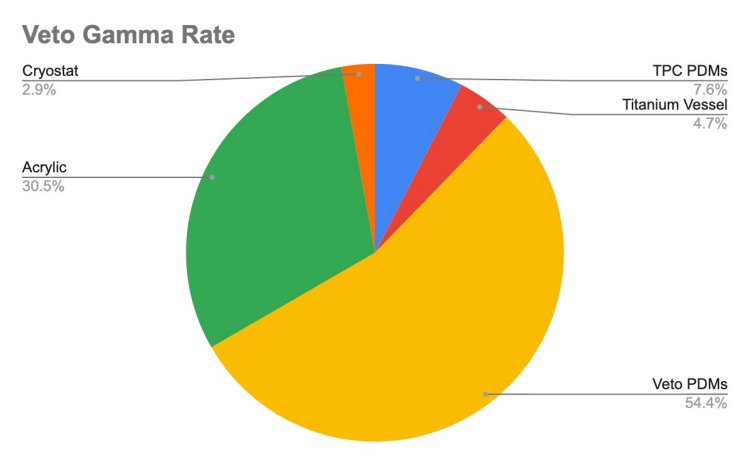
Updating Acrylic Activities

- The latest assay of the Gd loaded acrylic shows a significant contribution from lutetium (Lu)
- Assay showed that the activity from Lu was of a similar order to that from U238 – important to take this into account
- Activity for the Gd Acrylic increased by ~28Bq (from 1.18E+02 to 1.46E+2)
- This increases the gamma rate by
  - 5.4Hz in the TPC (increase of ~14.0%)
  - 14.5Hz in the Veto (increase of ~14.4%)

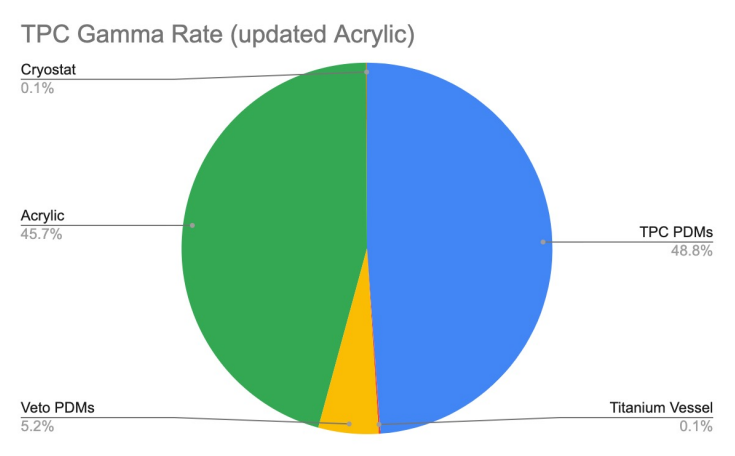
Effect on the Contribution

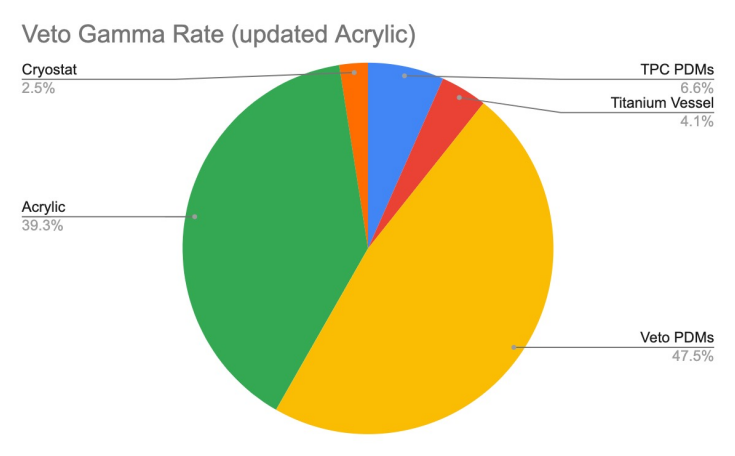
Before updating Acrylic activity





After updating Acrylic activity





Summary

- Adding in the Lu into the calculation increases the total activity by a factor of 1.2
- This results in a change in the gamma rate:
  - TPC increases from 39Hz to **44Hz**
  - Veto increases from 100Hz to **115Hz**
- This is inline with expectation:
  - Gd acrylic impacts the Veto more than the TPC
  - It has a linear effect on the gamma rate