PMT potting (XP3102)

Plenary meeting – Orsay – January 22, 2010

IPNO detector dept.

http://ipnweb.in2p3.fr/~detect

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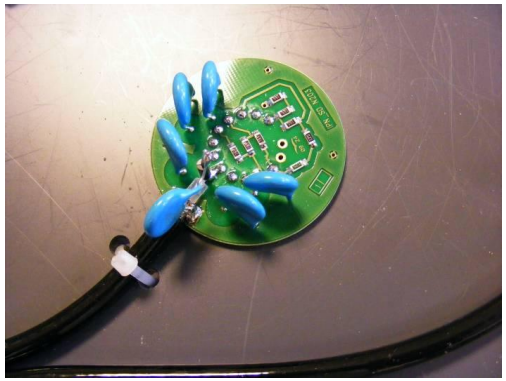
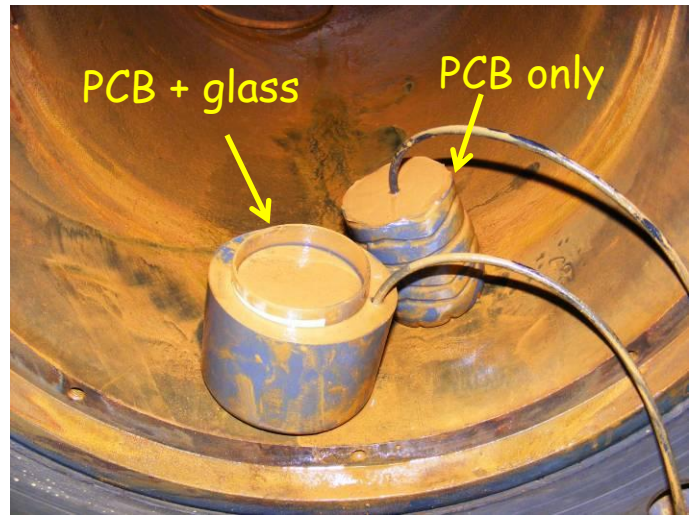
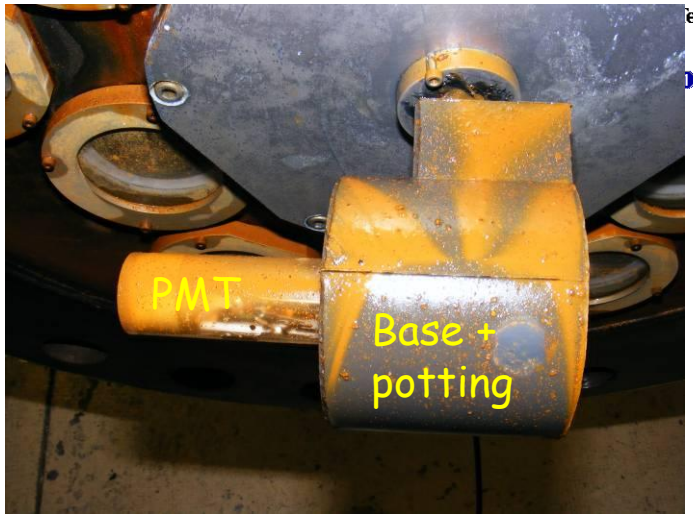
Potting: preliminary tests

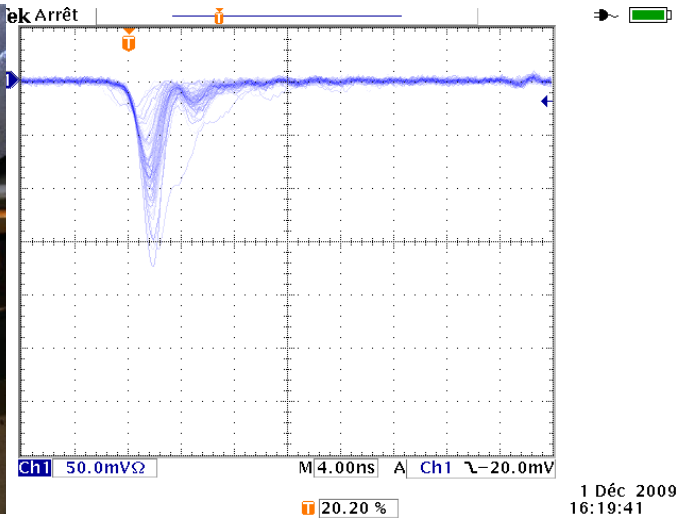




- Base only
  - Polyurethane cable
  - Pressure: 10 and 20 bars
  - Monitor the base current at 2 kV: 106.5 *μA*
  - stable over 16 days
- Base + glass:
  - Tested for 10 days at 20 bars
  - 66 days at 15 bars
  - stable base current

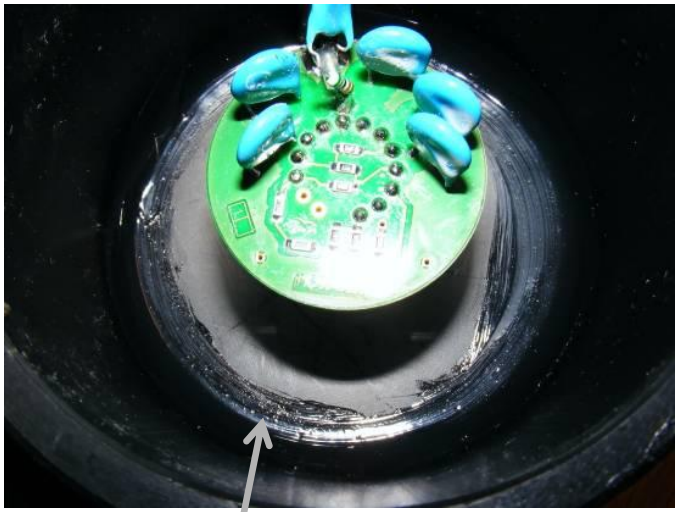
Potting + PCB + PMT





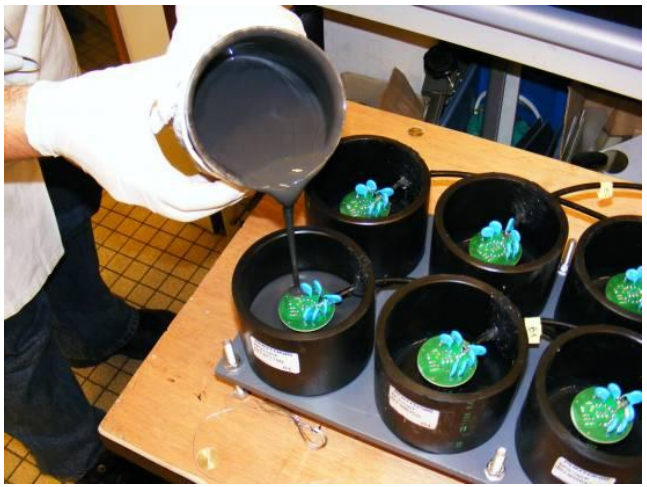
- Tested tube: PMT XP3102 S/N 995701
- Bias: 1423 V (gain = 10^7)
- Stability test:
  - Pressure = 10 bars
  - Single photoelectron adjusted manually: set the oscilloscope threshold to 20 mV (≈ 0.3 pe)
  - Monitor the amplitude stability
- Stable over 6 days at room pressure
- **Stable over 45 days at 10 bars**

Potting of 16 1-in PMTs (1)



- Not possible to glue the polyethylene cap: use of silicone joint

Potting of 16 1-in PMTs (2)



- Bi-component potting material
- Outgassing completed in 2 minutes

Summary

- Satisfactory results for the PMT potting with the polyurethane cable
- We can be confident for the tests with the 8″ PMTs