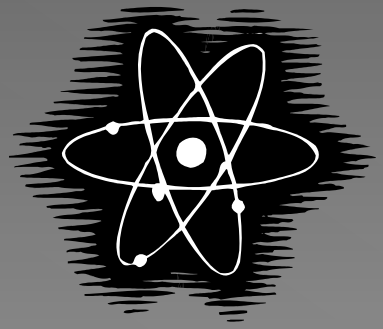
# Phosphorus 32



# Characteristics

- Radioactive half-life: 14.3 days
- Decay mechanism: Beta emission
- Energy: Emax = 1709 keV
  Eavg = 695 keV
- Contamination monitoring:
  Thin window Geiger-Mueller detector
- Shielding: 1 cm lucite
- Dosimetry:
  - micro-curie quantities – none,
  - milli-curie quantities - Film badge, TLD ring, urinalysis

# Decay Table

| Days | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|
| **7** | 1000 | 953 | 908 | 865 | 824 | 785 | 748 |
| **14** | 712 | 679 | 646 | 616 | 587 | 559 | 533 |
| **21** | 507 | 483 | 460 | 439 | 418 | 398 | 379 |
| **28** | 361 | 344 | 328 | 312 | 298 | 284 | 270 |
| **35** | 257 | 245 | 234 | 223 | 212 | 202 | 192 |
| **42** | 183 | 175 | 166 | 159 | 151 | 144 | 137 |
| **49** | 131 | 124 | 119 | 113 | 108 | 102 | 98 |
| **56** | 93 | 89 | 84 | 80 | 77 | 73 | 70 |
| **63** | 66 | 63 | 60 | 57 | 55 | 52 | 50 |

# Dose Rate

- The dose rate on contact on the side of a 1 mCi delivery vial can be on the order of 1000 mrem/hr.
- If possible, avoid direct hand contact with vials and sources.
- When working with 100 µCi or more of P-32, work should be done behind a 1 cm lucite shield

# Skin Dose

- One microcurie of P-32 in direct contact with 1 $cm^2$ of bare skin gives a dose rate to the skin of about 9 rem/hr.

- Always protect your skin and eyes when handling unsealed materials. Wear gloves, lab coats, safety glasses, and shoes

# Detection

- A thin window G-M survey meter should always be available.
- A survey should be made immediately after use and any "hot spots" should be decontaminated.

# Dosimetry

- Film badges and TLD rings should be worn for all P-32 work when handling 1 millicurie or more.

# Waste

- Handle and store your radioactive waste carefully.
- The bottles for liquid waste should be placed in a secondary container (e.g. a bucket or tray) to contain spills or leaks.
- When more than a millicurie is involved, place 1 cm lucite in front of the container for shielding