Phosphorus-32 Information and Safety Sheet

P-32 is both an internal and external hazard to the body. External hazards are caused by contamination, poor work habits, and improper shielding. Common internal routes of entry are inhalation, ingestion, skin absorption, and puncture wounds to the skin.

^{32}P Information

Beta (max): 1.71 MeV

Beta (avg.): 0.694 MeV

Maximum beta range in air: ~20 feet

Half-life 14.3 days

Biological half-life: 257 days (whole body) 1155 days (bone)

Skin contamination dose rate: 1 µCi/cm^2 results in 4770 mRem/hr

Bremsstrahlung X-rays are produced when betas interact with material with high atomic numbers (such as lead)

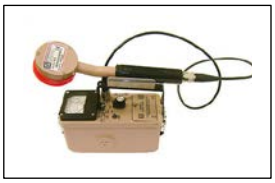
SHIELDING:

3/8 inch plexiglass/acrylic/lucite.

Do **NOT** use lead as primary shielding due to production of X-Rays.

DETECTORS:

A Geiger-Mueller (GM) detector will easily detect P-32 with an approximate 25% efficiency. Liquid scintillation counters will detect P-32 at near 100% efficiency.



SAFE HANDLING:

All personnel using radioactive materials must be trained by Radiation Safety. By following the principles of ALARA and donning appropriate personal protective equipment (PPE) the hazards of using P-32 can be greatly minimized. Frequent surveys of work area and body are needed due to high dose rate to skin.

When using P-32 be sure to use:

☑Lab coat ☑Dosimeter ☑Double Gloves

☑GM detector ☑Plastic shielding ☑Protective eyewear

Good work habits include clean work stations, working on bench paper or spill trays, labeling all equipment that is (or could be) contaminated, keeping licensed material secure, clear and up-to-date inventories, and no hand-to-mouth activity such as eating, drinking, or mouth pipetting.

In case of spills call 978-934-3373 or 978-934-3372

In case of emergency call 978-934-4911 (x4-4911 on campus)