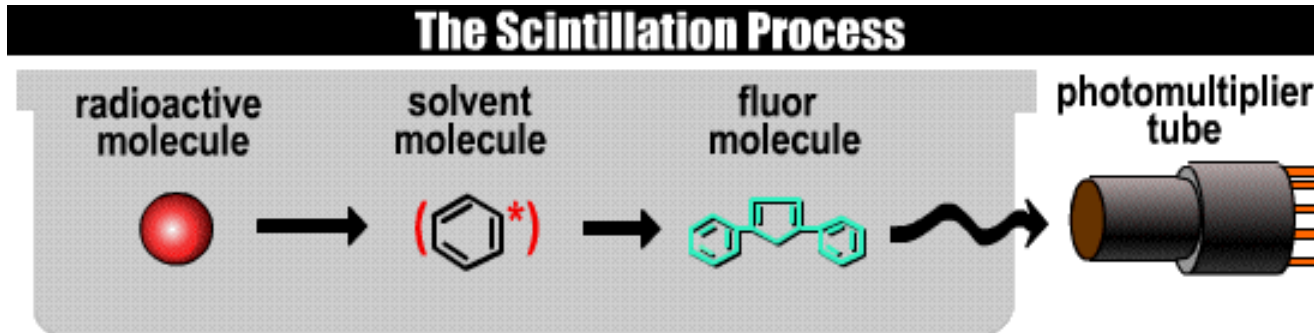


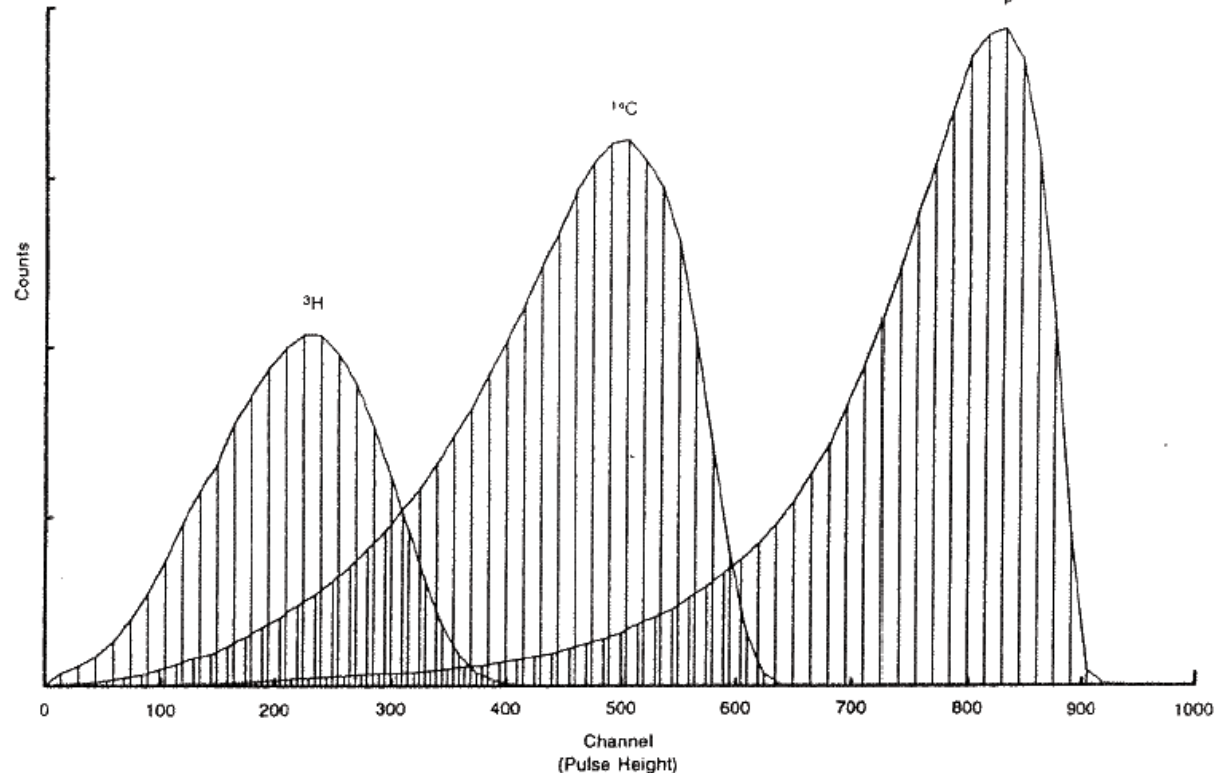
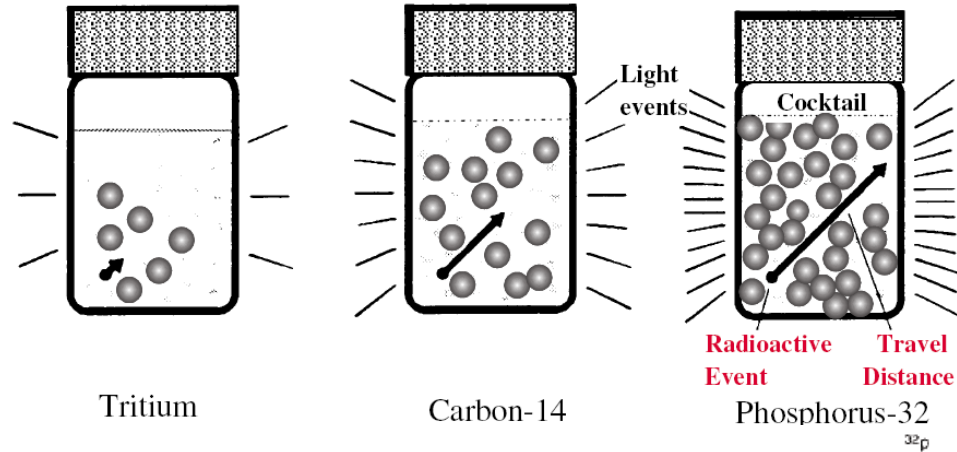
# Scintillation Counter



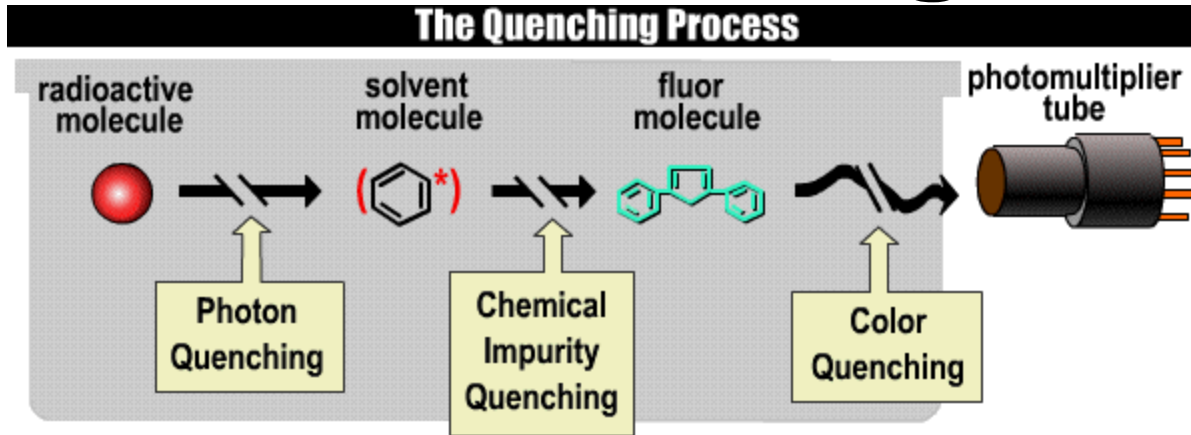
- Scintillation Cocktail contains solvent and fluor (or solute) molecules.
- Solvent is good at capturing energy of  $\beta$ -particle (electron), but does not produce light.
- A fluor molecule enters an excited state following interaction with excited solvent.
- The excited fluor molecule decays to ground state by emitting light (usually in blue wavelength)
- Blue light is detected by photomultiplier tube (usually two PMT are used to minimize PMT errors).

# $\beta$ -Energy and Light Intensity

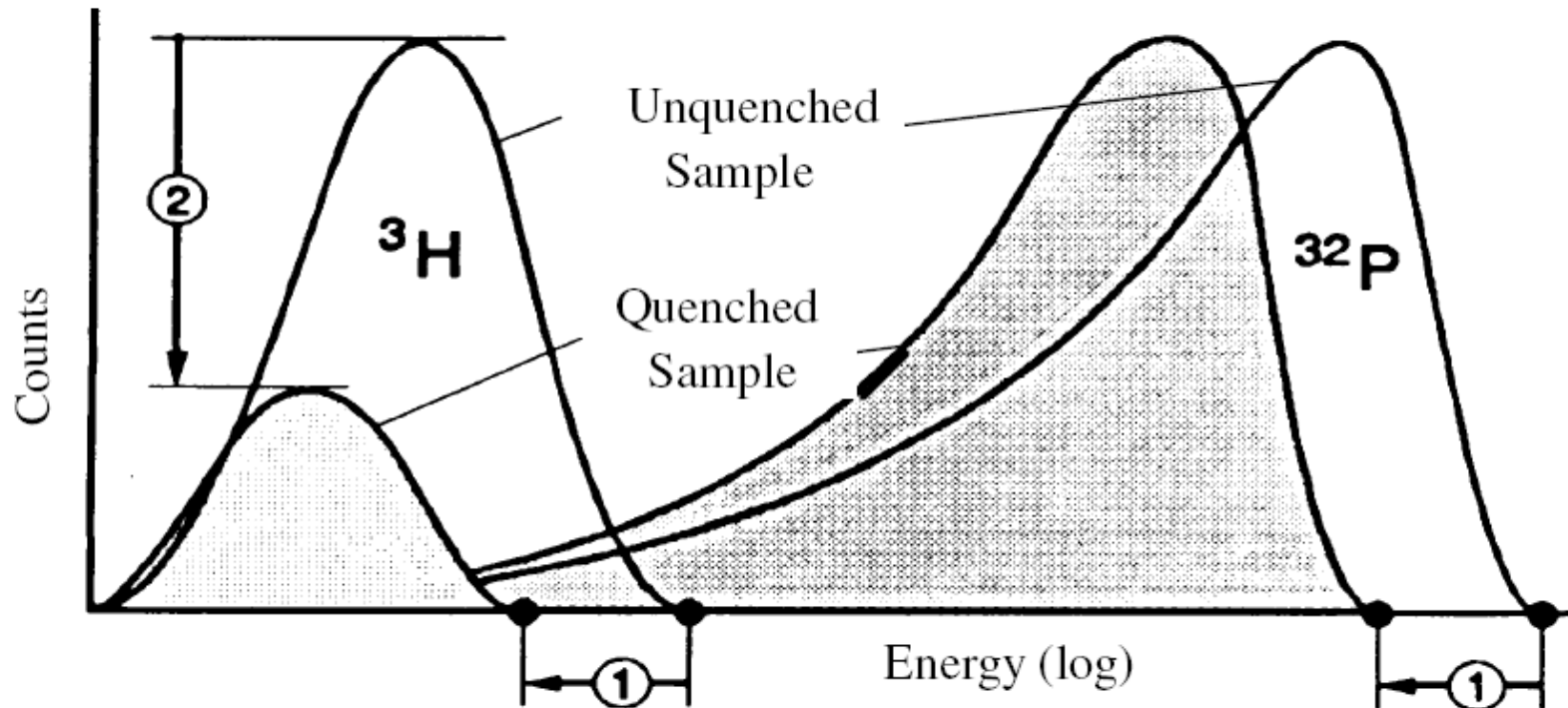
Stronger  $\beta$  emitters generate stronger pulses of light, so that  $^3\text{H}$ ,  $^{14}\text{C}$ , and  $^{32}\text{P}$  can all be distinguished and counted at the same time.



# Quenching

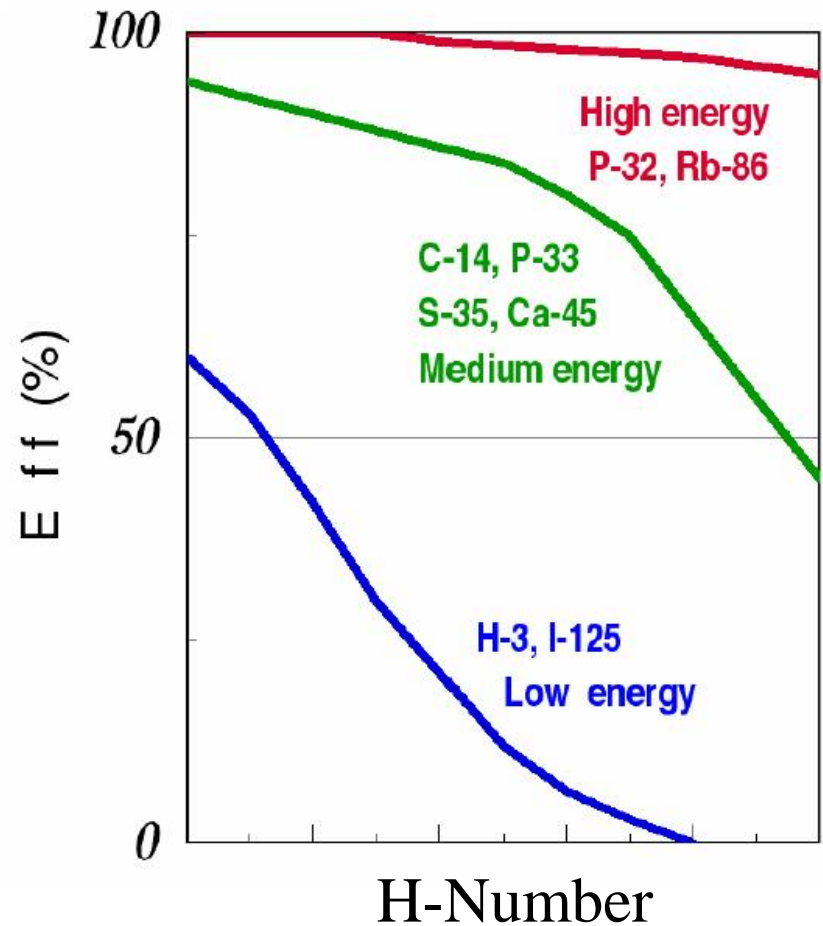
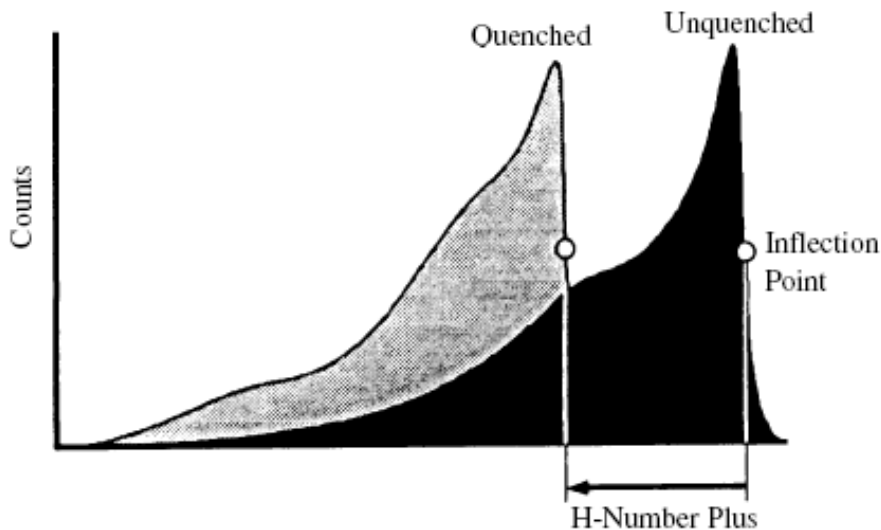
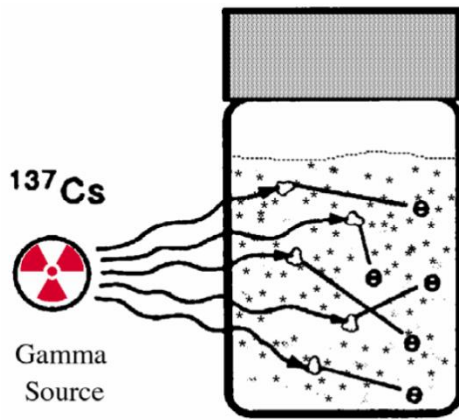


## Effects of Quenching



# Beckman's H#

Compton electrons



The larger the H number the greater the quenching