

RPR 2B. RADIOACTIVE MATERIAL USE APPLICATION

(For unsealed or dispersible materials not used in or on humans)

<u>Nuclide</u>	<u>Physical/Chemical Form</u>	<u>Maximum Order</u>		<u>Nuclide ALI</u>	<u>Monthly Use</u>
		<u>mCi</u>	<u>How Often?</u>		
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

*See "RADIONUCLIDE CATEGORIES AND DATA" (RPR 10A)

In addition to the RESPOSIBLE USER'S TRAINING & EXPERIENCE (RPR 2A), the PERSONAL DATA from (RPR 1a, submit the following:

__ "RADIATION USER TRAINING & PERSONAL DATA" forms (RPR 1A) for all other individuals who will work in the same location (faculty, staff).

__ Brief description of experimental objectives and methods, with justification for the specific radionuclides and quantities.

__ Description of facilities where radiation sources will be used and stored, including building, rooms, fume hoods, shielding, security arrangements; include diagram of layout if appropriate.

__ Description of radiation survey instruments that will be readily available for contamination and exposure control, and analytical instruments that will be used for determination of radioactivity in wipe test papers or urine samples.

__ Animals to be used, if any, including number, individual doses, holding facilities and handling methods.

__ Brand names of liquid scintillation fluor(s) and tissue solubilizers, if any, that will be used. Written justification must be provided for any fluors other than "NHNT" and vials larger than "minis". See "LIQUID SCINTILLATION MEDIA" on next page.

__ Description and estimated quantities of radioactive wastes to be generated. If any radioactive wastes will also contain any hazardous materials, as defined by the EPA, provide written justification for producing them.

I have read the university's Radiation Safety Policy Manual and understand the conditions and regulations contained in it. With respect to the requested radiation sources and proposed uses, I acknowledge and accept the responsibility for:

- radiation protection instruction for all involved personnel;
- acquisition of the equipment, supplies and/or services necessary for radiation protection;
- security to prevent misuse or theft of radioactive materials;
- maintaining accurate records of acquisitions and dispositions;
- regular contamination and/or exposure surveys and records;
- notification of the RSO of any accident or abnormal incident;
- arranging for authorization of another individual to assume the preceding responsibilities, or to suspend or terminate all radiation uses, prior to any extended absence.

Signature of Responsible User: _____ **Date:** _____

LIQUID SCINTILLATION MEDIA

Fluors containing non-hazardous, non-toxic (NHNT) solvents are required unless a specific exception is obtained from the RSO or the Radiation Safety Committee. Examples of such fluors are:

Flour (Mfgr.)	H-3 Efficiency* Mean ± SD (N)	Flow* (sec)	Fluor (Mfgr.)	H-3 Efficiency* Mean ± SD (N)	Flow* (sec)
BCS (AMER)			Betamaz-ES (ICN)	45.1 ± 7.9 (6) ¹	2.6
Bio-Safe II (RPI)	38.1 ± 5.2 (24) ²	4.1	Bio-Safe NA (RPI)	43.9 ± 9.8 (6) ¹	2.5
Cytoscint-ES (ICN)	43.7 ± 4.0 (24) ²	3.7	Ecolite (+) (ICN)	32.1 ± 5.1 (24) ²	5.3
Ecolume (ICN)	36.6 ± 6.0 (24) ²	4.9	Ecoscint A (NAT)	40.2 ± 4.5 (24) ²	3.7
Ecoscint H(NAT)	45.8 ± 5.0 (24) ²	2.7	Ecoscint O (NAT)	45.1 ± 6.7 (6) ¹	2.8
Envirosafe (ANOR)	35.4 ± 4.6 (24) ²	4.2	Mono Flow 5 (NAT)	35.6 ± 3.7 (24) ²	2.7
Opti-Fluor** (PACK)	39.7 ± 5.5 (24) ²	3.2			
OrganicSolv 3 (ANOR)	42.2 ± 9.7 (6) ¹	2.5			
Ready Safe (BECK)	40.6 ± 4.2 (24) ²	7.2			
Ultima Gold (PACK)	43.1 ± 2.1 (24) ²	5.5			

Fluors containing toxic or flammable solvents may not be purchased without prior approval from the RSO. Examples are:

CP, HP, HP/b, EP, MP, NA, Ready Micro, Ready Solv, Ready Protein, Ready Gel, Ready Value, Ready Organic, Ready Flow II, Ready Flow III (BECK)

Universall (ICN)

Betafluor, Hydrofluor, Liquiscint, Monoflow 4, Ultraglow (NAT)

Aquasol, Aquasol-2, Econofluor, Exonofluor-2, Formula 963, Liquifluor, Omnifluor, Atimlight, Aquasure, Biofluor, Riafluor, and all "NEF" numbers (NEN)

Insta-Gel XF, Scit-A XF, Pico-Aqua, Pico-Fluor 15, Pico-Fluor 40, Hionic Fluor, Filter-Count, Pico-Fluor LLT, Insta-Fluor, Permafluor V, Monophase S, Flo-Scint I, II, III, IV, and V (PACK)

* Tritium counting efficiencies are based on 0.1 mL sample in 4.0 mL fluor; "Flow" represents the time for a fixed volume to flow from a pipette and is inversely proportional to viscosity; data from Klein, RC and Gershey, EL, 'Biodegradable' liquid scintillation counting cocktails, Health Physics 59:461-470, 1990.

1 Non-aqueous cocktail

2 Multipurpose cocktail

AMER = Amersham Corp., Arlington Heights, IL 800-323-9750

ANOR = Anorak Scientific, South Hackensack, NJ

BECK = Beckman Instruments, Fullerton, CA 800-742-2345

ICN = ICN Radiochemicals, Irvine, CA 800-854-0530

ISO = Isolab, Inc., Akron, OH 800-321-9632

NEN = Dupont-NEN Products, Boston, MA 800-551-2121

NAT = National Diagnostics, Manville, NJ 800-526-3867

PACK = Packard Instrument Co., Downers Grove, IL 800-323-1891

RPI = Reasearch Products International Corp., Mount Prosrct, IL 800-323-9814