Grading of Laboratories per AS2243.4

Laboratory Location:_____ Date:_____

Isotopes/Form/Activities Used:_____

Isotopes	Tox Grp (F1)	Modifying Factor (Procedural - F2)		Bio Mod	Low Level Lab if Below	Med Level Lab if Below	Outcome (Low/Med/High)
Am241.	I	Simple Storage	100		20 MBq	2 GBq	Low/Med/High
	I	Very simple wet operations (aliquots of stock solutions)	10		2 MBq	200 MBq	Low/Med/High
	I	Normal chemical operations (analysis of simple preparations)	1		0.2 MBq	20 MBq	Low/Med/High
	I	Complex wet operations (multi consecutive ops or use of complex glass apparatus)	0.1		20 kBq	2 MBq	Low/Med/High
	I	Volatile compounds and simple dry operations (manipulate powders)	0.01		2 kBq	0.2 MBq	Low/Med/High
	I	Gasses and complex dry operations with airborne powder)	0.001		0.2 kBq	20 kBq	Low/Med/High
Co60, I125, Ge68, Sr90, Cd109, I131, Ra226.	II	Simple Storage	100		2 GBq	200 GBq	Low/Med/High
	II	Very simple wet operations (aliquots of stock solutions)	10		200 MBq	20 GBq	Low/Med/High
	II	Normal chemical operations (analysis of simple preparations)	1		20 MBq	2 GBq	Low/Med/High
	II	Complex wet operations (multi consecutive ops or use of complex glass apparatus)	0.1		2 MBq	200 MBq	Low/Med/High
	II	Volatile compounds and simple dry operations (manipulate powders)	0.01		200 kBq	20 MBq	Low/Med/High
	II	Gasses and complex dry operations with airborne powder)	0.001		20 kBq	2 MBq	Low/Med/High
Na22, Na24, P32, P33, S35, Ca45, Ca47, Sc47, Fe55, Fe59, Co57, Co58, Cu67, Zn65, Ga67, Ga68, Se75, Br82, Rb86, Sr89, Y90, Mo99, In111, I124, Cs137, Sm153, Yb169, Ir192, Au198.	III	Simple Storage	100		200 GBq	20 TBq	Low/Med/High
	III	Very simple wet operations (aliquots of stock solutions)	10		20 GBq	2 TBq	Low/Med/High
	III	Normal chemical operations (analysis of simple preparations)	1		2 GBq	200 GBq	Low/Med/High
	III	Complex wet operations (multi consecutive ops or use of complex glass apparatus)	0.1		200 MBq	20 GBq	Low/Med/High
	III	Volatile compounds and simple dry operations (manipulate powders)	0.01		20 MBq	2 GBq	Low/Med/High
	III	Gasses and complex dry operations with airborne powder)	0.001		2 MBq	200 MBq	Low/Med/High
H3, C11, C14, K40, K42, Cr51, Cu64, Zn69, Tc99m, I123, I132, Cs131, Dy164, Tl201, Th232, U238.	IV	Simple Storage	100		20 TBq	2 EBq	Low/Med/High
	IV	Very simple wet operations (aliquots of stock solutions)	10		2 TBq	200 TBq	Low/Med/High
	IV	Normal chemical operations (analysis of simple preparations)	1		200 GBq	20 TBq	Low/Med/High
	IV	Complex wet operations (multi consecutive ops or use of complex glass apparatus)	0.1		20 GBq	2 TBq	Low/Med/High
	IV	Volatile compounds and simple dry operations (manipulate powders)	0.01		2 GBq	200 GBq	Low/Med/High
	IV	Gasses and complex dry operations with airborne powder)	0.001		200 MBq	20 GBq	Low/Med/High

Grade	Typical examples	Description	Control of other aspects
Low	Radio-immunoassay area within a small medical diagnostic laboratory using only pre-labelled non-volatile kits. Typically using no more than 400 kBq of Iodine-125 per week in predispensed kits	Continuous floor covering but not coved up to walls. Melamine, PVC, stainless steel or similar flat-topped benches without raised edges. Semigloss washable paint. No particular effort to conceal exposed pipes and conduits. Window exhaust fan may provide sufficient air change Fume cupboard not necessary. A handbasin should be provided. However, a lever action tap over a laboratory sink may be acceptable to the regulatory authority. Flushing sink may or may not be needed, depends upon type of work	Access limited to laboratory workers. Normal laboratory coats satisfactory. No requirement for overshoes. Radioisotope area often occupies a small section of bench space within a larger laboratory in which non-radioactive work is also carried out. Work area delineated by radioactive marking tape holding down absorbent paper on which work should be carried out in trays
	Larger radio-immunoassay laboratories in pathology practices and hospitals	Criteria as itemized in AS/NZS 2982.1	Access limited to laboratory workers
	Teaching, medical and research laboratories in medical schools, hospitals, universities, CSIRO and similar institutions Typical usage up to 20 MBq of radiotoxicity hazard group 2 up to 2 GBq of group 3 and up to 200 GBq of group 4	A fume cupboard in accordance with AS 2243.8 will be required in most of these laboratories Advice shall be sought from the RPA as some of the medical and biological/molecular biology/pathology laboratories will need to meet additional criteria for small scale genetic manipulation work (see Reference 13)	Wrap-over type laboratory coats with fastenings using hook and loop fastening fabric should be provided, coats should also be colour identified for radioisotope work Laboratory should be dedicated to radioisotope work only
Medium	Radio-iodination procedures in research laboratories and institutions with typical I-125 activity up to 200 MBq Radiochemistry research with typical usage up to 20 MBq of Co-60, up to 400 MBq of Sn-113 and Zn-65	Criteria as itemized in AS/NZS 2982.1 Seek RPA advice as above if genetic manipulation involved	Laboratory shall be dedicated solely to radioisotope work. Overshoes may be required to RPA advice. Colour-coded laboratory coats with fastenings using hook and loop fastening fabric essential. Access restricted to radioisotope workers
	Prep nuclear medicine diagnostic doses	Criteria itemized in AS/NZS 2982.1 Compliance with appropriate parts of *Australian Code of good radio-pharmaceutical practice* (Reference 14)	As above
	Prep radioisotope therapy doses		As above. Overshoes required
	Small scale production of commercial radioisotope products		
High	Refer AS/NZS 2982.1		