I USE SUNBEDS, WHY ARE THEY DANGEROUS?

Ultraviolet (UV) tanning beds were introduced into the UK in the 1970s. A cause for concern is their increased use by young people with about 24% of British 16–24 year-olds using sunbeds, and there are a growing number of children under the age of 16 who frequent solaria.

Typically a bed will contain forty 200 W fluorescent tubes plus 12 to 24 smaller 25 W tubes incorporated between the main tubes within the lid. The tubes emit both UVA (95%) which causes skin aging and UVB (5%) which induces erythema (skin inflammation) and ultimately burns.

More importantly, long term exposure to UV can lead to various forms of skin cancer. About 65 000 cases of skin cancer are reported in the UK each year with 2000 proving to be fatal. Malignant melanoma is now the most common form of cancer in young adults aged between 15 and 34 and it is often fatal. It has been estimated that 100 UK skin cancer deaths per year are attributable to the use of tanning beds.

Overdosing on UV

A recent study by the Photobiology Unit at Ninewells Hospital in Dundee found that 83% of sunbeds tested produced UVB radiation levels that exceeded European standards. The UVB emitted has reportedly increased by a factor of 3 over the last ten years, due to the increasing use of highpowered ‘fast-tan’ lamps.

Another worrying aspect is the increasing number of unmanned solaria where unsupervised users can purchase as many ‘UV tokens’ as they wish from a coin-operated machine. Each token switches on the bed for no less than three minutes which, on average, is the maximum recommended UV exposure for un-tanned skin. Six minutes on an average sunbed is enough to induce erythema in people with skin type 2.

Yet vanity prevails. The quest for that ‘healthy looking’ tan goes on unchecked by a significant proportion of the population who are either ignorant of the undeniable cancer risks represented by sunbeds or simply chose to ignore them. In addition, both local and national government seem remarkably slow to introduce any legislation or licensing regime to control solaria.

Despite the wealth of scientific data that causally links UV exposure to skin cancer, it seems that the general public are more worried about, and the media more fascinated by, the potential cancer risks from mobile phones than the irrefutable cancer risks due to sunbed usage.

UV Sterilisation: Whereas UV Sunbeds use predominantly UVA radiation with a percentage of UVB, the radiation from UV Germicidal or Sterilising lamps is UVC. These are considerably more hazardous and great care must be used to protect eyes and skin. More information on next page or available from Radiation Protection Office.
URANUS

DISPOSAL OF RADIOACTIVE MATERIAL

The University of Liverpool has Authorisations issued by the Environment Agency (EA) for the disposal of radioactive material when it is of no further use (i.e., radioactive waste). In order to obtain these Authorisations, the RPA has to submit documentary evidence that the disposal route will not have a significant adverse effect on the environment and that there is no hazard to members of the public, which includes workers in the disposal stream either in sewage treatment works or on landfill sites etc.

The EA lays down limits for disposal by each authorized route and compliance with these limits has to be demonstrated by the university. This is usually done by completing a ‘Pollution Inventory’ at the end of each calendar year. However, an EA Inspector may demand to see evidence of compliance at any time.

In order to collate the data for the Pollution Inventory, each User must record all disposals of radioactive material to the Departmental Radiation Protection Supervisor (DRPS) who, in turn, must send a monthly return of stock and disposals to the RPO each month.

All the data is collated by RPO and made available to an Inspector when required.

The Use may think that the RPO is in the business of creating Red-Tape but, hopefully, you will realize that we have to ensure that the university complies with Regulations set out in each of our Authorisations.

A fuller explanation can be found on the website at http://www.liv.ac.uk/radiation/pdf/wastemanagement.pdf

Duties of the Radiation Protection Office:
The duties of the RPO are generally four-fold.

1. To protect the staff and students from the hazards of radiation
2. To protect the general public from work at the University of Liverpool
3. To protect the environment from the discharges of radioactive waste that arise at the University of Liverpool
4. To protect the University of Liverpool from legal action that can arise from non-compliance and/or poor practice

Next Seminars

Basic Radiation Seminar
Wednesday 14th October.

Laser Safety Seminar
Wednesday 21st October.

Details may be found on the website

“\text{The thought of being x-rayed goes through me, are they OK?}”

Find out in the next issue due online early July

ULTRA-VIOLET LIGHT (including TRANSILLUMINATORS)

Perhaps a little surprisingly the majority of accidents or incidents involving radiation at the university involve the use of Ultra-Violet (UV) light. Therefore we have no compunction in concentrating most of this issue to the hazards of UV.

Small quantities of UV exposure can be beneficial but, like small children, excessive exposure can be too much of a good thing!

UVA and UVB lamps tend to appear blue when operating although there is negligible visible light emitted. However, UVC lights are usually clear glass and there is no visible indication that the lamp is on except from possible fluorescence of materials in the beam. The time for a reaction to an exposure to be noticed can be hours for UVA and UVB but UVC reactions usually appear in minutes or even seconds. These take the form of Photokeratitis in the eyes (which feels like grit under the eyelid, or Erythema on the skin (intense reddening).

The eyes and skin must always be protected when exposure to any form of UV light is possible in the workplace. This protection should include UV face shields and gauntleted gloves which cover the wrist below and including the cuffs of the labcoat. The labcoat, in turn, should fasten to the neck above the line of the face shield.

If in doubt contact Radiation Protection Office

POLICY OF RPO

We are here to help you.

We know that you are going to do the work so let us help you by guiding your procedures into the safest possible. Remember we don’t bite, at least not often!

MICROWAVE OVEN CLEANLINESS

In common with much equipment around the university the microwave ovens in departments are multi-user. Frequently this means that nobody cleans them! OK so unless the caked on food debris or agar reagent is fouling the door it is unlikely that there is a serious radiation risk to users. However when testing them we are placing a clean beaker into the oven and we’d like to keep it clean!

OPTICAL HAZARD REGULATIONS

The Physical Agents (Artificial Optical Radiation) Directive 2006/25/EC of the European Commission is in the process of being incorporated into UK legislation. This encompasses all sources of artificial light (which is everything except sun and candles!).

Over the next months Radiation Protection Office will be conducting an audit around the university to assess the effect of this legislation. Please be patient when we ask for an inventory of such light sources.

Please send any comments on the work of Radiation Protection Office to rad.pro@liv.ac.uk