

Spotlight Feature

Anaesthetics and Laboratory Equipment

Equipment for volatile chemical use: anaesthesia, necropsy, staining

From anaesthesia to cleaning to pathology, volatile chemicals have many uses in animal laboratories. This month, we look at equipment for anaesthesia, dissection, preservation and staining—equipment that needs to keep laboratory animal workers safe.

Not only must anaesthesia equipment deliver gases to animals, it also must take them away so as not to affect the people working in the operating room. In rodents, as in larger animals or humans, induction of anaesthesia is through injection. But, according to one supplier in the UK, anaesthesia equipment for rodents is very specific for these animals and differs from anaesthesia equipment for larger animals, such as dogs, and for humans. Although animals may be initially sedated via injection, ventilation is via an open mask method, with circuits being open to the atmosphere, inducing the anaesthetised rodent to breathe naturally.

Isoflurane (Forane, Baxter International, Deerfield, Illinois, US) is a halogenated anaesthetic agent that is most commonly used. According to the supplier, however, laboratories are now changing over to use of sevoflurane (Ultane, supplied by Abbott Laboratories, North Chicago, Illinois, US; manufactured by Maruishi Pharmaceutical Co., Osaka, Japan). Anaesthesia equipment is long-lasting—the supplier said it lasts “indefinitely.” When changes occur, such as the switch from halothane to isoflurane, and now the change from isoflurane to sevoflurane, companies sell kits to update their equipment.

Anaesthesia equipment must remove the gases from the air. Laws relating to exposure to these gases vary from country to country. Thus, even if a company is manufacturing equipment in a country with a higher exposure allowance, it will likely manufacture its equipment to meet the standards of the most-stringent country to which it sells.

Necropsy, dissecting and staining tables

Different types of tables are available for different uses. Choices include necropsy or dissecting tables, staining and drying tables for histology slides, and formalin-dispensing cabinets. The goal is to keep the worker safe from both volatile chemicals and pathogens.

According to our sources, three major companies manufacture downdraft or down-backdraft equipment for animal laboratories: AFOS (NSE), Ltd., in Hull, UK; Mopec in Oak Park, Michigan, US; and TBJ in Chambersburg, Pennsylvania, US. This equipment allows open-air dissection and sample preparation with use of formalin, alcohol, xylene or other volatile organics used in tissue preservation. The equipment creates a downdraft, sucking the volatile chemicals and fumes down from the worktable, or a backdraft, drawing them into a backsplash area of the workstation. The equipment is tied to the building's internal ventilation system and obviates the use of a hood. Because of this, it is more comfortable for

bells and whistles, including formalin dispensers, sinks with hand sprayers, fans and filters, lighted work areas, computer workstations and more. Some stations are small and can be placed on top of existing cabinets. These stations are considered the lower end of the product lines. Often, these lower-end products are purchased for special procedures.

Most of the equipment is bespoke, manufactured to meet the specific needs of the users. Users include universities, which tend to buy middle-of-the-road systems; zoos, which necropsy all their dead animals; and animal research facilities, which use them for research or pharmaceutical development.

An organisation that uses this equipment and that is building a new laboratory will generally consult a manufacturer early in the process. The manufacturer will work with the facility architect to design the workstations for the facility's needs. The manufacturer's engineers will calculate air movement in the room in which the equipment will be installed, to make sure the user is always in a safe environment. If equipment is needed for a facility that already exists, the manufacturer will send a sales representative to look at the facility's space, consider its existing applications and work with it to design a system that will fit the facility's needs.

One US manufacturer of this equipment explained that most purchasers buy a middle-of-the-road trimming and necropsy station for about \$20,000 (a bit more than £10,000 or nearly €14,000). Pharmaceutical companies doing large amounts of research may purchase systems costing about \$100,000 (slightly more than £51,000 or nearly €70,000). The equipment is stainless steel and is long-lasting. One of the newer innovations now moving into the animal laboratory has been used for quite some time in medical examiners' laboratories: elevating workstations. These are more ergonomic than standard stationary benches.

Suppliers of Anaesthetics and Laboratory related products and services include:

AFOS NSE
Mopec Inc
TBJ
Datesand
Uno Roestuaslstaal BV
Vet Tech Solutions Ltd

Further listings are available from the Lab Animal Europe Buyers Guide, request your copy today.

people to use; depending upon the height of the station, a worker may be able to sit on a chair at the worktable.

Equipment ranges from small, moveable tables to large workstations, with all the

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