



FIGURE 9 (A) Typical NIBSC label for candidate reference material; (B) typical WHO label for endorsed International Reference material.

The whole process is reviewed to ensure it has been carried out in accordance with the agreed criteria and the freeze-drying is reviewed to determine if the chosen conditions were satisfactory.

Storage and Dispatch

Biological standards and reference materials are stored at the appropriate temperature in controlled, calibrated, monitored, and alarmed storage facilities. The freeze-dried materials are normally stored at -20°C to maintain stability over the period of the material's availability, which may be a decade or more. Freeze-dried materials should be sufficiently stable to withstand short-term shipping at ambient temperatures without deterioration to its intended use.

The ampoules/vials are removed from storage on the day of dispatch and packed in accordance with national/international regulations. Shipment is typically by post (mail) except for countries where import via the post is a known problem or the shipment is urgent when couriers are used.

Infectious standards, for example, hepatitis B surface antigen, and frozen materials that require solid carbon dioxide (dry ice), are shipped via specialized carriers and according to International Air Transport Association (IATA) and air security regulations, using UN certified packaging. Shipments sent with solid carbon dioxide include a "tell-tale" monitor to indicate thawing of the contents (even if refrozen). Special training and certification is required for staff involved in shipping these substances.