

## Proper Handling of Mercury-Contaminated Triturators (2/01)

The USAF Dental Investigation Service (DIS) has determined that dental triturators have the potential for being contaminated with mercury during routine use.<sup>1</sup> Two sources of the contamination have been identified by DIS.<sup>1</sup> First, during trituration, mercury has been shown to leak from older, manually-activated amalgam capsules manufactured by the SDS/Kerr Company. A second, and probably less important source of the mercury, is from microscopic droplets of mercury on the exterior surfaces of amalgam capsules. The external surface contamination has been seen on capsules from a number of manufacturers and is assumed to be the result of the normal manufacturing process. During trituration, this mercury is displaced from the surfaces of the capsules and accumulates inside the mixing chamber and housing of the triturators.

**DIS studies indicate that contaminated triturators do not pose a health risk to dental personnel who operate them.**<sup>2</sup> Although mercury vapor levels within these triturators may be elevated, normal room air ventilation dilutes and reduces mercury vapor levels in the breathing space of operator personnel. As a result, the mercury vapor levels are several orders of magnitude below maximum exposure levels established by the National Institute for Occupational Safety and Health (NIOSH) and the American Conference of Governmental Industrial Hygienists (ACGIH).

**Mercury-contaminated triturators, however, constitute a potential risk to the environment during disposal.** A joint evaluation by DIS and the 76th CES Hazardous Materials (HAZMAT) Response Team, Brooks AFB TX, determined that the amount of mercury in contaminated triturators warrants their being classified as an environmentally-hazardous waste.<sup>3</sup> Accordingly, this means that contaminated triturators cannot be disposed of as regular solid waste but must be specially handled by local HAZMAT managers or the Defense Reutilization and Marketing Office (DRMO). A protocol for decontaminating triturators has been developed by DIS in conjunction with the 76th CES HAZMAT Response Team. Unfortunately, the protocol is labor-intensive, requires the participation of HAZMAT-trained personnel, and necessitates that the triturators be completely disassembled. In addition, not all of the triturator's components can be decontaminated using this protocol; 10% still must be disposed of as hazardous waste.

DIS recommends that the Base Bioenvironmental Engineer evaluate your triturators for mercury contamination before you turn them in to DRMO at the end of their lifecycle. If mercury is detected either by visual observation or by detectable mercury vapor levels, the triturator must be considered environmentally-hazardous waste. Local HAZMAT managers and/or DRMO can determine how the contaminated triturators should be processed (e.g., either through hazardous waste disposal or by retorting/recycling).

### References

1. Dental Items of Significance 59-17, Determination of Possible Mercury Contamination of Used Amalgamators.
2. Dental Items of Significance 59-18, Determination of Possible Mercury Vapor Hazard to Medical Personnel from Mercury-Contaminated Amalgamators.
3. DIS Project 99-020, Decontamination of Mercury-Contaminated Amalgamators.