

I. INTRODUCTION

The purpose of this chapter is to provide a broad overview of the types of equipment and instrumentation available for use by OSHA personnel. This information is not a comprehensive resource for specific types of instrumentation, nor is it intended to replace the owner's manual. Rather, its purpose is to provide a broad understanding of the principle of operation for the particular type of equipment and an understanding of the capabilities and limitations of the equipment. End users should always follow the owner's manual and manufacturer recommendations regarding the specific operation and maintenance of the equipment being used.

The sections which follow discuss various types of instrumentation. Calibration and battery maintenance are discussed in Section II. Section III discusses direct-reading instruments used for assessing chemical and particulate-type air contaminants. Section IV reviews equipment used to support ventilation and indoor air quality (IAQ) assessments. Sections V and VI describe vibration monitors and heat stress monitoring equipment, respectively. Section VII describes instrumentation for detecting nonionizing (e.g., radiofrequency) radiation, which is available through the [Cincinnati Technical Center](#) (CTC).

Appendix A provides a useful reference chart which summarizes the various types of instrumentation available and typical applications. Appendices B and C describe specialized tools used to evaluate chemical and biological warfare agents, respectively. Use of these tools is overseen by the [Salt Lake Technical Center](#) (SLTC) [Health Response Team](#) (HRT) and OSHA's [Specialized Response Teams](#) (SRTs). Appendix D describes equipment used for detection of ionizing radiation, which is also overseen by the HRT.

Note that noise monitoring equipment is NOT discussed in this chapter. Chapter 10 contains the discussion of noise monitoring equipment. Also, this chapter does NOT discuss air sampling methods for collection of samples for off-site laboratory analysis. Active and passive (diffusive) personal air sampling methods for air contaminants are discussed in Chapter 1.

NOTE: Any discussion regarding a specific manufacturer's product is not meant to imply an endorsement or approval by OSHA, but merely reflects the need to convey specific information which is pertinent to the particular type and brand of instrumentation available for OSHA personnel.

The CTC serves as a source of technical information for instruments and measurement technology. Much of the equipment and instrumentation discussed in this chapter is available from the CTC through the [Agency Loan Equipment Program](#) (ALEP).

Hazardous (Classified) Locations

Certain workspaces may contain a flammable or explosive atmosphere due to the accumulation of flammable gases or vapors, or combustible dusts or fibers, and are termed "Hazardous locations." Hazardous locations are classified into Class and division based on the type and severity of the explosion hazard as described in 29 CFR 1910.307. Sparks from ordinary battery-powered portable equipment commonly used by CSHOs, including cameras, cell phones, tablets and laptop computers, may serve as an ignition source, and must never be brought into a hazardous location.

Nationally Recognized Testing Labs test and approve electrical equipment for use in hazardous locations (see 29 CFR 1910.7) Approved equipment, sometimes referred to as intrinsically safe, must be marked with the Class and Division number for which it is approved. Never bring portable monitoring instruments into a hazardous location without first confirming that the instrument is approved for use in that environment. Use only the type of battery specified on the safety approval label, and replace batteries in a nonhazardous area.