Abstract: This Standard provides procedures for the measurement of occupational noise exposure from all types of noise; e.g., continuous, fluctuating, intermittent and/or impulse/impact. Measurements may be reported as sound level with corresponding duration, time-weighted average sound level, and/or noise dose. This Standard provides for the measurement of the noise exposure of individuals and can be extended to represent groups performing similar activities. It can also be used to measure the noise exposure from a given job or activity. This Standard does not provide procedures for the measurement of occupational noise exposures attributable to the rise of earphones or telephone receivers. This Standard presents recommended practices for utilizing instrumentation such as a sound level meter, noise dosimeter, integrating sound level meter, and acoustical calibrators. Guidelines are provided for measurement conditions such as the acoustical environment, measurement activities, and operational variations. The parameters surrounding the noise and its impact on the selection of instrumentation is presented. Specific guidelines for using a sound level meter, a noise dosimeter and an integrating sound level meter are presented. Guidelines for documentation and reporting of the measurement of occupational noise exposure are specified.

The development of a consensus standard involves bringing together experience from many groups such as, industry, consultants, academic, and government. Each bringing their own perspectives on what should be included in the document. The S12-19 working group brought together such a range of experience. Based upon the various methodology presented, it became obvious there was not one approach for all industry and occupations. However, it also became clear there were basic standards regardless of the specific methodology utilized. It was these basic standards which became the basis for S12-19. Some of these core elements are discussed here and fully presented in the S12-19 Standard document.

The scope of this Standard provides:
1) procedures for the measurement of occupational noise exposure,
2) measurement of occupational noise exposure from all types of noise, e.g., continuous, fluctuating, intermittent and/or impulse/impact,
3) reporting of measurements as sound level with corresponding duration, time-weighted average sound level and/or noise dose,
4) measurement of noise exposure of individuals and extended to representative groups performing similar activities,
5) measurement of noise exposure from a given job or activity.
This standard does not apply to occupations whose employees use earphones or telephone receivers.

The definitions presented in the S12.19 document provide assistance in defining jobs, activities, groups, representative groups, hearing zone, and many acoustical terms utilized in this Standard.

The instrumentation used to conduct the measurements have been defined as a sound level meter, noise dosimeter and an integrating sound level meter. The Standard provides requirements for laboratory calibration and field calibration before and after each measurement period.

The measurement of noise exposure of an individual employee can be obtained by:
1) direct measurement in the hearing zone of TWA or dose through personal monitoring,
2) measurement in the hearing zone of sound levels and corresponding durations,
3) measurement of sound levels in employees' work area(s) and corresponding duration when the work area(s) sound levels are known to be representative of the levels in the employees' hearing zone.

If the measurements are taken with a sound level meter or integrating sound level meter then the work tasks and their duration shall be recorded. This information can be determined by:
1) experience,
2) questionnaire or interviews,
3) time and motion studies, or
4) production records, etc.

The duration of the measurement should be sufficiently long for the resulting sound level to be representative of the sound level occurring during the performance of a task by the employee. Guidelines for the measurement procedure are:
1) Individual(s) being monitored should be informed of the purpose of the measurement.
2) The sound measuring instrument should be acoustically calibrated before each measurement period.

In addition to the information regarding the employee work tasks and duration, the following should be recorded:
1) tasks performed during the measurement period,
2) measurement duration, date, and time,
3) sound level of the tasks
4) estimated average time spent on each tasks during the entire workshift,
5) measurement location and whether a person was present at the employee work location,
6) instrumentation make, model, and serial number,
7) surveyor’s name, and
8) calibration information.

If the measurements are taken by a noise dosimeter, the measurement duration should be sufficiently long for the resulting noise exposure to be representative of the noise exposure associated with the task(s) performed by the employee. Some of the guidelines for the measurement procedure are,
1) The employee being monitored should be informed of the purpose of the measurement. The employee shall wear the instrumentation for the entire measurement period and perform his/her duties normally. It is recommended that, where practical, the employee be under visual observation during the entire measurement period. Alternatively, other means of verifying the validity of the measurements should be used (e.g., sound level measurements and time histories, etc.).
2) The microphone should be located on the mid-top of the wearer’s shoulder or as near as feasible. The Standard provides further detail on location of microphone.
3) The dosimeter shall be reset according to the manufacturer’s instruction after field calibration. The dosimeter should be started and stopped while still attached to the wearer to insure no extraneous noises are introduced.
4) The start and stop times should be noted unless the instrument provides a complete set of time references and history information. The time when the dosimeter is read should be noted. In addition to the above the following information shall be recorded:
   a) the employee's name, number, and job title,
   b) tasks performed during the measurement period,
   c) estimated average time spent on each task during the entire workshift,
   d) locations worked and any unusual activities in the area,
   e) measurement duration date, and time,
   f) instrument reading
   g) shift duration,
   h) instrument make, model, and serial number,
   i) surveyor’s name,
   j) calibrators information, and
   k) microphone location.

The documentation and reporting section provides guidelines in preparing a written report. The section describes in detail what is required in a written report.

REFERENCE