



Guidelines for noise mapping in industry

Noise mapping in industry can be useful to assess the risks of harmful noise. This tool is frequently used in large plants with few workers, for example in chemical and petroleum industry. No standard exists for mapping of noise for this purpose, nor is any work item of such kind proposed. Based on our experience we have set up some guidelines to make a noise map based on measurements. These guidelines can also be used to assess noise levels in machines rooms.

The measurement is made during a representative situation, and if more situations are possible, the most common one. The equivalent sound level is measured. The measurement time at each position is at least 15 seconds and is sufficiently long to give a stable reading of the equivalent level within 0,1 dB/ 5 s. The microphone height is 1,6 +/- 0,1 m.

Measurement positions:

- may be restricted to accessible areas
- have a minimum distance from any noise source of 1 m
- have a minimum distance from any reflective surfaces of 0,5 m and 2 m from walls
- a minimum of three measurement positions is used in any enclosed space, unless the preceding rules make this impossible
- minimum density of measurements is 1 position for 100 m² (accessible surface)
- levels on a map are rounded to the nearest whole decibel
- maximum level difference between each adjacent measurement position is 6 dB (survey grade), or 3 dB (engineering grade)
- if equal level lines are drawn these should have a minimum distance of 6 dB (survey grade), or 3 dB (engineering grade)
- a map states levels in a traceable way (e.g. measurement number)

The report states:

- a list with all measurement results, including date and exact time of each individual measurement
- used measurement equipment with last date of calibration
- if possible and relevant an estimation on the daily noise exposure of the workers who regularly visit the areas examined

It is important that a map is easy to read, but results have to be accounted for: what was the exact measurement value and when was this measured. The latter can be important to verify the noise values with event logs of the plant.

Uncertainty of the measurements must carefully be considered, measurements are at least repeated ones using an interval between these two measurements of several hours.

Colleagues and other experts are encouraged to comment!