

Guide to using the on-line hand-arm vibration exposure calculator

1. The calculator may be used online or, if you prefer, you can download and save it on your computer as a spreadsheet file (Microsoft Excel).

2. Click on the white areas and type in a vibration magnitude (in m/s^2) and an exposure duration (in hours and/or minutes). You can do this for up to six different tools or processes.

3. When you have entered all the numbers, press the ENTER key, or click on a different cell. The following values will then be calculated and displayed in the yellow cells on the right.

- The *Partial exposure* is the vibration exposure (shown in both $\text{m/s}^2A(8)$ and exposure points) for each individual tool or process, and is calculated from the *Vibration magnitude* and the *Exposure duration*.
- The *Total exposure*, also given in $\text{m/s}^2A(8)$ and exposure points, is calculated from the *Partial exposures*.

4. In addition to the partial and total exposure values, the calculator also uses the vibration magnitudes to produce the following values:

- *Exposure points per hour*. The number of exposure points for every hour of exposure time for the individual tool or process.
- *Time to reach EAV* (exposure action value). This is the total exposure time required for the individual tool or process, before the exposure action value ($2.5 \text{ m/s}^2A(8)$ or 100 points) is reached.
- *Time to reach ELV* (exposure limit value). This is the total exposure time required for the individual tool or process, before the exposure limit value ($5 \text{ m/s}^2A(8)$ or 400 points) is reached.

5. The illustration below shows the calculator in use. In this example, three tools are used by an operator during a working day. The vibration magnitudes are 2, 6 and 3.5 m/s^2 and the total exposure times are 15, 30 and 90 minutes respectively. These values have been typed into the white cells (you can use hours, minutes or a combination of the two for the exposure duration). The results (in the yellow cells) show the partial exposure values for the three tools and the total exposure which, at $2.2 \text{ m/s}^2 A(8)$ or 75 points, is below the exposure action value.

HSE
Health & Safety Executive

HAND-ARM VIBRATION EXPOSURE CALCULATOR

Version 3

Tool or process	Vibration magnitude m/s ² r.m.s.	Exposure points per hour	Time to reach EAV 2.5 m/s ² A (8)		Time to reach ELV 5 m/s ² A (8)		Exposure duration		Partial exposure m/s ² A (8)	Partial exposure points
			hours	minutes	hours	minutes	hours	minutes		
Tool or process 1	2	8	12	30	>24			15	0.4	2
Tool or process 2	6	72	1	23	5	33	0.5		1.5	36
Tool or process 3	3.5	25	4	5	16	20	1	30	1.5	37
Tool or process 4										
Tool or process 5										
Tool or process 6										

Instructions for use:

Enter vibration magnitudes and exposure durations in the white areas.
 To calculate, press the Enter key, or move the cursor to a different cell.
 The results are displayed in the yellow areas.
 To clear all cells, click on the 'Reset' button.
 For more information, click the HELP tab below.

Daily exposure m/s ² A (8)	Total exposure points
2.2	75

Reset

6. The cells can be cleared for another calculation by clicking on the Reset button in the bottom right hand corner.

Note: When you open the spreadsheet you may see a Microsoft Excel message asking you to decide whether to enable or disable macros. If your system settings allow it, you should enable macros. If not, the Reset button will not work, but the white cells can still be cleared by manually deleting their contents.