Results: Estimates of exposure for 138 EMF sources were obtained from measurements (1424 aggregated records) extracted from 71 papers and hygiene reports (1974–2013). For each source, exposure was calculated by frequency band and dosimetry type, as the arithmetic and geometric means of all measurements identified. Standard deviations were included in order to characterise the variability of the estimates.

Conclusions: A source-exposure matrix has been constructed for the most common sources of EMF in the workplace, based on the responses to the INTERPHONE-INTEROCC study questionnaire. This database currently represents the most comprehensive source of information on occupational EMF exposure and is available on request to researchers.

Objective: To determine gene-specific methylation levels (promoter region) on genes from critical cellular pathways in persons occupationally exposed to a single volatile organic compound (VOC) or to a mixture of them.

Method: Workers from two tanneries, two shoe factories, and two gas stations were included (exposed groups to VOC’s). We also included administrative workers (reference group), all of them from the city of León Guanajuato, México. In tannery workers we measured individual exposure levels to three different VOC’s; for the rest of the groups we measured up to 7 VOC’s. After exposure characterisation, we took blood samples and extracted DNA in order to determine, by PCR-pyrosequencing, methylation levels in genes involved in inflammation, DNA repair, oxidative stress and xenobiotic metabolism pathways.

Results: Only toluene environmental levels were higher in tannery workers. Workers from the leather shoe factory showed the highest exposure levels for up to five different VOC’s. There was no statistical significant difference in gene-specific methylation for tannery workers when compared to the control group. For the leather shoe factory workers, we found hypermethylation in the TNFα, SOD1 and TOP2A promoter regions compared to the control group. For the gas station attendants showed hypermethylation for the IL6 gene compared to controls.

Conclusions: Occupational exposure to a mixture of VOC’s has important effects on the methylation status of genes involved in inflammation, DNA repair and oxidative stress. These epigenetic changes, detectable at a pre-clinical stage, represent a valuable tool for performing an early risk assessment in these populations.