

## INDIRECT ULTRAVIOLET AND INFRARED RADIATION EXPOSURE

Ultraviolet (UV) and infrared (IR) radiation emitted by welding arcs, flames and thermal radiators is highly hazardous. Whereas the welder himself has to wear personal protective equipment, people working nearby or passing the welding place are usually not considered to be at risk. However, also the radiation exposure to these passers-by and adjacent workplaces must be considered.

Therefore, in 2015 PEROSH started a joint research project focusing on the 'Exposure of Workers to Indirect IR and UV Radiation Emitted by Arcs, Flames and Thermal Radiators' (indIR-UV). Scientists from Austria (coordinator), France, Germany, Italy, Poland and Spain participated in this project.



*The welder is protected, but the co-worker in the foreground not.*

### /// OBJECTIVES

The project strived for:

- a legally compliant risk assessment instrument
- the reduction of complex threshold limits and measurements to basic factors for a common-sense risk calculation
- the publication of a model and tools for risk assessment of these specific workplace situations for the project partners

### /// TARGET GROUPS

Safety engineers, employers and workers of organisations confronted with these work place situations can use the results of this project to further fine-tune their risk assessments.

## /// RESULTS

Two models were developed and are ready for use by the project partners (see below) in their respective countries. One is on risk assessment for bystanders in the case of welding, the other is on thermal radiators. They are unique in their easiness of use and therefore suitable for risk assessment based on worst-case scenarios. Both models (including source codes) are available through the project partners and can be further tailor made based on national specifics and standards.

An article was published in which the researchers explain their approach and research methodology: [Ultraviolet spectral irradiance measurements: an intercomparison of spectroradiometers in laboratory combined with a workplace field test](#), S Bauer, A Barlier-Salsi, M Borra, M Sanchez Fuentes, M Janßen, A Militello, G Ott, T Pfeifer, J Piķuła, A Rybczyński, M Weber, A Wolska and E Kitz, Journal of Physics Communications, published 29 January 2018

## /// RELEVANCE

Indirect exposure to UV and IR radiation is underestimated, although workers can run a substantial risk. This PEROSH research project compared several spectroradiometers to test the reliability of the measurement of UV radiation in laboratories or workplaces. Furthermore, with the research findings indirect UV and IR exposure can be measured more accurately. This will save time and money and in the end lead to a better protection of the workers at risk.

## /// RESEARCH TEAM

This PEROSH project was developed between the following institutes: Austrian Worker's Compensation Board (AUVA, Austria), Federal Institute for Occupational Safety and Health (BAuA, Germany), Central Institute for Labour Protection–National Research Institute (CIOP-PIB, Poland), GL Optic R&D (Poland), National Institute for Insurance against Accidents at Work (INAIL, Italy), National Research and Safety Institute (INRS, France), Spanish National Institute of Safety and Hygiene at Work (INSSBT, Spain) and Seibersdorf Laboratories (Austria) as a collaborative partner and the Institute for Occupational Safety and Health of the German Social Accident Insurance (IFA, Germany) as an observing partner.



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