



**Technology  
to  
Licence  
T-20-008**

**Welding  
Headshield  
Fume  
Detector**



## Overview

Researchers at TU Dublin have developed a Patent Protected Welding Headshield Fume Detector. The patent pending system utilises a sensor built into a welding shield to detect the harmful substances generated from the various types of welding processes. The sensor alerts the user of the presence or absence of these hazardous gases and fumes. The sensor will detect high/low levels for example, Oxygen (O<sub>2</sub>), Carbon monoxide (CO), Manganese (Mn), Nickel (Ni) and Zinc (Zn) among others giving the user the opportunity to either move his/her position, stop welding until the fumes and gases have dissipated or use an alternative system to remove the toxins.

The sensor includes a flashing light to alert the wearer of the presence of the fumes and gases inside the welding headshield. The sensor also has an alarm that will make a sound to alert the welder if fumes and gases have entered the welding headshield. The sensor may be powered by a battery or from the cells that power the auto darkening screen. The sensor is housed in a casing that will not interfere with the comfort or vision of the welder and it should be accessible for a battery change if needed. The sensor can be placed in the air tube of an air fed mask or in the filter unit of an air fed mask. The unit can record the fume history data. The sensor is designed to detect a wide range of fumes and gases and where appropriate, alert the welder. The headshield includes a unidirectional airflow system to avoid false alarms from the wearer's exhaled breath. The flow of air is faint as not to cause discomfort to the wearer. This may be battery powered from the cells that power the auto darkening screen.





## Advantages

- Improved operator safety
- Reduced operator fatigue
- Reduced operator downtime due to illness, E.g., Galvanising flu
- Low cost
- Reduced operator exposure to long term toxic fume inhalation
- Compact
- Portable
- Highlight unforeseen toxic fume presence
- Improved Productivity

## Opportunity

The commercialisation of this product will fill an obvious gap in the market for bespoke safety equipment for welding operators. Users will benefit from reduced short and long term illness. Less exposure to welding fumes and increased comfort. Reduced fatigue and positively contributes to the users wellbeing. This will have directly quantifiable improvement in the quality and efficiency of the operator's performance.

## Stage of Development

- TU Dublin is seeking commercial partners to assist in bringing this technology to market.
- Patent Pending



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