

## Effects of Welding Fume Exposure on Human Placental Cells

### Data Dictionary

Field Name	Field Contents
% Detected	% of element/metal present in welding fume sample
4 hr	Cells exposed for 4 hours with welding fumes
24 hr	Cells exposed for 24 hours with welding fumes
Cr (ppm)	Parts per million of Chromium (Cr) detected in soluble fraction of welding fume, as determined by ICP-AES
Cr(VI)	Hexavalent Chromium, used as a positive control
D <sub>50</sub>	Percentage of particles that are below the 50 <sup>th</sup> percentile, giving an indication of the distribution of particle sizes within the sample.
DM	Dispersion medium. Used as a negative control
Element	Any element detected by X-Ray fluorescence
ESR	Measurement of hydroxyl radical production, as determined with electron spin resonance (ESR). Data represents peak height, which was measured in millimeters
Fe (ppm)	Parts per million of Iron (Fe) detected in soluble fraction of welding fume, as determined by ICP-AES
GMAW-MS	Gas metal arc welding- mild steel
GMAW-SS	Gas metal arc welding-stainless steel
IL-1B	Pro-inflammatory cytokine, measured using MSD. Units are pg/ml
IL-6	Pro-inflammatory cytokine, measured using MSD. Units are pg/ml
IL-8	Pro-inflammatory cytokine, measured using MSD. Units are pg/ml
Intracellular ROS	Measurement of intracellular reactive oxygen species (ROS) production, as determined using the DCFH-DA assay. Measurement is fluorescence units.
Invasion Assay	Assay used to measure trophoblast invasion capability. Measurements taken at an optical density of 560 nm.
LPS	Lipopolysaccharide. Used as a positive control
Mean	Average welding fume particle size
Mn (ppm)	Parts per million of Manganese (Mn) detected in soluble fraction of welding fume, as determined by ICP-AES
Mode	Most frequently appearing welding fume particle size
Ni (ppm)	Parts per million of Nickel (Ni) detected in soluble fraction of welding fume, as determined by ICP-AES
Non-Soluble	Cells exposed to non-solubilized welding fume fraction

<b>Particles/ml</b>	<b>Number of welding fume particles present per milliliter of sample</b>
<b>RPMI</b>	<b>Cell culture medium. Used as a negative control</b>
<b>Shielding Gas</b>	<b>Used to protect the weld from the environment</b>
<b>SMAW-SS</b>	<b>Shielded metal arc welding- stainless steel</b>
<b>Soluble</b>	<b>Cells exposed to solubilized welding fume fraction</b>
<b>Time (h)</b>	<b>Measurement over the course of time, in hours (h)</b>
<b>TNF<math>\alpha</math></b>	<b>Pro-inflammatory cytokine, measured using MSD. Units are pg/ml</b>
<b>Viability</b>	<b>Measured with WST-1 assay. Data represents percentage of viable cells when normalized to controls</b>
<b>Welding Fume</b>	<b>Type of welding fume used for cellular exposures</b>