# SAMPLING SOLUTIONS

## For Welding Operations

## Recognition

Welding operations may expose workers to toxic levels of gases such as carbon monoxide, nitrogen dioxide, and ozone. Airborne particulates resulting from welding are also a concern because they can produce a variety of metal fumes such as manganese and hexavalent chromium that are hazardous to workers' health. The International Agency for Research on Cancer (IARC) has classified welding fumes as Group 1 carcinogens because there is sufficient evidence that they cause cancer in humans. SKC offers a variety of solutions for direct-readout of target compounds, as well as active and passive sampling of target compounds. SKC active samplers require an air sample pump to collect hazardous gases and vapors in air; passive samplers collect hazardous vapors by diffusion without the use of an air sample pump.

***See the SKC equipment recommended for sampling the following target compounds in welding operations:***

- Carbon monoxide, nitrogen dioxide, and ozone
- Metal fumes including hexavalent chromium and manganese

## Evaluation with SKC Sampling Solutions

For over 60 years, SKC has led the research, design, and manufacture of quality sampling equipment and media to aid health and safety professionals in the evaluation of occupational and environmental hazards.

Choose from the many SKC sampling solutions for welding operations, ranging from air sample pumps, active and passive samplers, sample bags, filter cassettes, and sorbent tubes to innovative portable instruments following agency methods and established protocols.

***See reverse side for specific method and sampling equipment/media information.***

Notice: This publication is intended for general information only and should not be used as a substitute for reviewing applicable government regulations, equipment operating instructions, or legal standards. The information contained in this document should not be construed as legal advice or opinion nor as a final authority on legal or regulatory procedures.

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## Sample Collection

### Active Air Sampling Solutions

Note: When using a sorbent tube with an AirChek® Touch Series pump, a low flow tube holder is required.

| Target Compound | Select Methods* | SKC Sample Collection Media and Cat. No. | SKC Sample Pump and Cat. No. | Notes |
|---|---|---|---|---|
| Carbon monoxide | OSHA ID 210 | FlexFoil® sample bag 252, 253, 262, or 263 Series | Grab Air 222-2301<br>Pocket Pump TOUCH 220-1000TC | *Requires PTFE tubing* |
| Elements by cellulosic internal capsule sampler | NIOSH 7306 | Solu-CAP® 225-8517 | AirChek TOUCH, Essential, Essential+, Connect | |
| Hexavalent chromium | NIOSH 7600 | Preloaded PVC filter cassette 225-802 | | |
| Metal fumes (metals and metalloid particulates) | OSHA ID 121<br>OSHA ID 125G | Preloaded MCE filter cassette 225-3-01 | | Analysis options:<br>OSHA ID 121 - atomic absorption<br>OSHA ID 125G - ICP |
| Metals (Elements) | NIOSH 7300 | Preloaded MCE filter cassette 225-3-01 or preloaded PVC filter cassette 225-802 | | |
| Nitrogen dioxide | NIOSH 6014<br>OSHA ID 182 | Sorbent tube 226-40-02 | Pocket Pump TOUCH 220-1000TC | |
| Ozone | OSHA ID 214 | Preloaded coated glass filter cassette 225-9014 | AirChek TOUCH, Essential, Essential+, Connect | |

### Passive Air Sampling Solutions

| Target Compound | Select Methods*/ SKC Validation | SKC Sample Collection Media and Cat. No. | Notes |
|---|---|---|---|
| Nitrogen dioxide | Research Report 1789 | UME$^X$ 200 500-200 | Solvent extraction and ion chromatography with conductivity detection |

### Surface Sampling Solutions

| Target Compound | Instrument and SKC Cat. No. | Notes |
|---|---|---|
| Hexavalent chromium | Surface SWYPE for Hexavalent Chromium Kit 769-1030K | |

* Other methods may apply. SKC recommends those listed.

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