Berkley INDUSTRIALCOMP®

7 Welding Hazards to Avoid

Top Welding Hazards and How to Stay Safe

Welding is essential in many industries, but it comes with serious safety risks. Understanding these hazards and how to prevent them is critical for every welder. Below are seven major welding hazards and practical tips to reduce risk.

1. Electrical Hazards in Welding
Arc welding works by creating an electrical circuit and forcing electricity through ionized gas, forming an electric arc. This arc produces intense heat and light, making electrical hazards one of the most obvious welding risks.
Common electrical dangers include:

- Improperly wired machines: A poorly wired welder can make its metal shell electrically hot, creating a severe shock hazard. Always hire a licensed electrician for wiring.
- Inadequate PPE: Wet clothing or welding in damp areas increases the chance of completing the circuit. Use clean, dry gloves and rubber-soled boots for insulation.
- High-frequency voltage risks: Gas tungsten arc welding (GTAW) uses high-frequency voltage to start an arc without direct contact. Welders should never become part of the electrical circuit, especially without gloves. Individuals with pacemakers or implanted devices should avoid high-frequency welding equipment.
- Removing welder covers: Some machines store electrical energy even when unplugged. Never open a welder unless properly trained.
- Circuit awareness: Know what is electrically hot. Avoid making cylinders or structural components part of the circuit. Inspect clamps and cables for tightness and wear.

2. Heat-Related Welding Risks
Welded parts can remain extremely hot even when they look cool. To prevent burns:

- Allow time for metal to cool after welding or cutting.
- Wear proper PPE: closed-toe shoes, welding jackets, gloves, and safety glasses under a welding helmet.
- Cover exposed skin to avoid sparks and burns.

3. Light and Radiation Hazards
Arc welding, plasma cutting, and oxy-fuel processes emit intense UV and visible light. Protect your eyes and skin:

- Use a welding helmet with the correct lens shade (typically 8–12; auto-darkening helmets range 7–14).
- Ensure helmets protect against UV and IR light even when not darkened.
- Shield nearby workers with welding screens.
- For oxy-fuel welding, wear Shade 5 goggles.
- Always cover skin to prevent UV burns similar to severe sunburn.

4. Fire Hazards in Welding
Prevent fires by:

- Keeping the workspace free of flammable materials like oil rags.
- Never carry butane lighters or use oxygen to clean clothes.
- Keep gasoline vapors and chemicals away from sparks.
- Avoid welding or cutting tanks that held flammable substances.

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5. Asphyxiation Risks
Welding in confined spaces can lead to oxygen displacement:
- Never weld without supplied breathing air in enclosed areas.
- Ensure ventilation with fans and open doors.
- Watch for gas leaks from cylinders or relief valves that can reduce oxygen levels.

6. Fumes and Respiratory Hazards
Welding fumes can be toxic:
- Know the base metal and remove coatings, oils, and chemicals before welding.
- Be aware of hazards from filler metals and electrodes.
- Tungsten electrodes may contain thorium, a radioactive element—take precautions when grinding.

7. Gas Use and Storage Risks
Compressed and liquefied gases pose multiple hazards:
- Flammability
- Explosion risk
- Accelerated combustion

Store and handle gases according to safety standards to prevent accidents.
Stay Safe, Stay Informed

Welding safety is non-negotiable. Use proper PPE, maintain awareness of electrical circuits, and ensure ventilation.