



ISRITM

SAFETY GUIDANCE MATERIAL

SAFETY OPERATIONS GUIDANCE

This safety resource was written for the scrap industry by the scrap industry and was developed to assist you in making your scrap operation a safe place for employees, customers, and visitors. This resource covers OSHA requirements that may or may not be applicable to your operation.

FURNACE

DEFINITION: Box or tank type container using high temperature to melt and separate or purify (usually) non-ferrous metals.

Potential Hazards:

- Aerosolized particles
- Burns/ Extreme Heat
- Explosive atmosphere
- Fire
- Hazardous fumes
- Ash

Guarding/Shielding:

- Point-of-operation guards must prevent a worker from placing any body part into the machine's danger zone during the operation cycle. Danger zone includes moving parts, and hot surfaces.
- Fuel lines must be guarded to prevent damage.
- Power transmission parts must be adequately guarded.
- Loaders or forklifts used to charge furnace should have safety glass or expanded steel in front of operator with a solid roof.

Protective Equipment:

Hard hats*
Safety glasses*
Face shield*
Steel toe/steel shank foundry boots with metatarsal guards*
Leather foundry gloves*
Fire resistive clothing*
Respirator as needed
Hearing protection as needed
*minimum requirements

Safety Procedures:

- Lockout/Tagout procedures must be developed, followed, and enforced for equipment maintenance/ servicing.
- Designate a safe zone around furnace to prevent burns to pedestrians.
- Keep flammables & combustibles away.

- Floor areas adjacent to furnace must be maintained clean and dry and free of trip hazards.
- If indoors, furnace should have forced air ventilation to outside or to bag house or other emission control device. Exhaust ducts should not discharge near doors, windows, or other air intakes.
- Determine, through air monitoring, whether use of respirators is required.
- Fire extinguishers should be appropriately placed, well labeled, with unobstructed access.
- Post emergency shut-down procedures.
- Regularly check for fuel gas leaks.
- Main fuel shut-off must be located away from furnace, easily accessible and labeled.
- Post type of fuel in use at building entrance.
- Regularly monitor temperature readings.
- Train workers on unacceptable materials in furnace including closed containers, magnesium, nitrates, and volatile materials.
- Gas-fired units must have an auto safety shut-off valve that cuts fuel flow if pilot is extinguished.
- High volume water supply and hose should be near furnace and inspected regularly.
- Stacks or ducts passing through walls must be properly insulated or clearance provided.
- Post warning signs indicating area of hazardous operation.
- Make sure skimmers, rakes, ladles and other tools are hot and dry before each use.
- Make sure molds are dry and preheated before pouring molten metal in them.
- Furnace should have automatic or manually controlled ventilating fan.
- Workers should have access to adequate supply of drinking water.
- When melting flammable metals such as magnesium a Class D fire extinguisher should be immediately available. Do not use water on flammable metals