

Introduction

This guidance document is aimed at safeguarding the health of those who visit or work in the metal casting shops, in particular to protect them against exposure to:

- Dusts, including various forms of silica containing materials which can cause silicosis;
- Heavy metals including lead, zinc, cadmium, chromium, nickel,
- Gases, some given off in large quantities and some very toxic and can include carbon monoxide, and metals
- Noise, sometimes of high intensity, causing hearing loss and interfering with communication between workers;
- Heat, which is a common ingredient of foundry work and can cause severe burns especially from contact with hot metals or containers. Both radiant and ambient heat can also result in infra-red burns or heat exhaustion.



Safety considerations

Wear eye protection, gloves, spats (covering top of feet), and thick clothing protecting all exposed skin on arms and legs. NO polyester or synthetic clothing.

Clear all objects not involved in pouring from the area.

Clamp or weight up molds that require it.

Metal added to heat must be free of moisture and impurities.

Metal added to heat during melt must be preheated.

Skimmers and other melting tools must be preheated before use.

Move slowly while removing crucible from furnace and moving to mold.

USE COMMON SENSE! Do not look into exhaust during operation.

Inspect crucibles before use.

Confirm proper operation of exhaust ventilation

Wear respiratory protection while melting copper-base alloys (brass, bronze). Contact EH&S for medical evaluation and proper fit testing prior to use.

Waste Disposal

This is the process of removal, segregation and safe storage and disposal of unusable materials and by-products. Significant non-recoverable waste is produced in most metal casting processes mostly in the form of old sand and other debris. This waste must be sampled to determine if elevated metal concentrations exist. This will determine how the waste will be disposed; general waste, problem waste or dangerous waste. Metals that may be present at elevated levels include lead, zinc, nickel, barium, copper, cadmium and chromium. Contact EH&S for sampling 2 weeks prior to disposal for sampling. If the metal concentrations indicate problem or hazardous waste levels EH&S will supply containers for disposal. EH&S will assist the instructor in the cleanout providing hands on training and hazard avoidance specific to this cleanout.

Maintenance of furnaces may produce health and waste issues as described above. All removed refractory brick is assumed to be contaminated with heavy metals and may be slightly radioactive. Contact EH&S prior to maintenance activities for safety and waste guidance. EH&S will handle all waste material.

All cooling water or sludge that may be associated with the cooling of metal items must be tested for heavy metals prior to disposal. Contact EH&S to arrange testing.

All metal scrap must be reused or placed in a container for recycling.

REVISION HISTORY		
Rev	Affected Page	Change Descriptions
0	All	Release 9/15/12
1	All	Formatting Changes on all pages, 5/29/14
2	All	Reviewed all 12/10/15
3	All	Update to New Format 4/28/2017