

- (1.) Burning
- (2.) Grinding
- (3.) Welding
- (4.) Machine grinding
- (5.) Pouring
- (6.) Melting

The recommended maximal allowable concentration of iron oxide expressed as Fe_2O_3 is 10 milligrams per cubic meter of air per 8 hour day. In all of the job exposures listed, the threshold limit will usually be greatly exceeded unless adequate exhaust ventilation is provided. In the case of machine grinding operations, exposure can sometimes be controlled by adding a wetting agent to the coolant.

Lead - National Bearing, Ramapo, American Forge, and Brakeblok involved.

In non-ferrous founding, this metal presents the greatest health hazard. All compounds of lead are poisonous but in varying degrees according to their solubility in tissue fluids. The low incidence of lead intoxication among miners of galena (lead sulphide) is probably due to the very low solubility of lead sulphide in the tissue of the lungs.

In foundry processes, it is evolved as lead oxide in melting, pouring, and welding operations. This is a very soluble form. In cleaning and machining operations, it occurs in the dust formed as elemental lead which is not as soluble as the oxide. If atmospheric concentrations were of the same order of magnitude, the incidence of lead poisoning will be greater where the oxide is the contaminant.

The maximal allowable concentration for lead adopted in the United States is 0.15 milligrams per cubic meter of air. This standard does not take into consideration the degree of solubility of the various lead compounds. In foundry work, if the average atmospheric concentration of the oxide is kept to 0.15 milligrams per cubic meter of air, men can work in that exposure for a life time without experiencing symptoms of lead intoxication. At 3.0 milligrams per cubic meter, poisoning may occur in susceptible persons. At 5.0 milligrams per cubic meter, most workers will experience symptoms more or less serious. In practise these values are sometimes difficult to meet without adequate exhaust ventilation. Even in the manufacture of "pure" copper castings there is often sufficient lead present as impurity to produce atmospheric concentrations of lead of the order named.

The literature is replete with data on the etiology, diagnosis, control and treatment of lead intoxication. It is sufficient to state here that in the production of alloy castings containing lead, there is always a serious potential hazard to health especially in the melting, pouring, cleaning, and machining operations. In any non-ferrous casting work, where lead is present as a "trace" metallurgically, there may be a hazard to health.

Lead can enter the body by ingestion or by inhalation so that even in the case of good dust control, cases of lead intoxication can occur, if food is permitted to be eaten in the foundry or liquids drunk from open containers, such as milk bottles. Foods and liquids may absorb lead dust and fume in sufficient amount to produce poisoning. Industrial