

PHYSICAL ASPECTS OF THE ENVIRONMENT

- 582 Survey of Welding Processes. J. A. Lucey. Ann. Occ. Hyg. (London) 7, 203 (Sept. 1964).

Welding processes are categorized into two groups. In the first welding is accomplished using heat and pressure, whereas only heat is required in the second. The first group includes forge, friction, pressure gas, resistance, stud, and induction welding. Group 2 includes oxy-fuel gas, arcs of many different types, Electroslag, Thermit, and electron beam. Also included are cutting and gouging processes, which are likewise categorized as those using (1) oxy-fuel gas and powder; and (2) air/carbon arc, plasma, oxy-arc, metal arc with flux-coated electrode, and gas-shielded metal arcs. The hazards associated with welding are indicated in general terms

-- J. Occ. Med. Absts

- 583 Electron Beam Welding. A. F. Taylor. Ann. Occ. Hyg. (London) 7, 241 (Sept. 1964).

Electron beam welding utilizes fast-moving electrons as a source of heat. This process is possible only with pressure below 10^{-3} mm. Hg. The apparatus includes: (1) The electron beam gun and power supply, (2) a vacuum vessel and pumping equipment, and (3) a welding manipulator inside the vessel. With energies in excess of 10^5 watts/sq. cm. the beam will fuse metals in a few microseconds. The hazards associated with this type of welding include those common to other welding processes plus x-rays, against which protection is needed. There is probably little hazard attendant to the use of the low-voltage systems, but high-voltage systems—that is, those utilizing potentials over 100 KV—should be carefully monitored for hazards.

-- J. Occ. Med. Absts

- 584 Health Hazards in the Welding and Cutting of Paint-Primed Steel. J. Steel. Ann. Occ. Hyg. (London) 7, 247 (Sept. 1964).

The thermal decomposition products of the following two groups of compounds are considered: (1) Pigments including aluminum, cadmium, chromium, iron, lead, magnesium, titanium, and zinc; and (2) primer media including acrylic, cresol-formaldehyde, epoxy, phenol-formaldehyde, polystyrene, polyurethane, polyvinyl-butyril, and polyvinyl chloride. The decomposition products of the latter include carbon monoxide, ammonia, nitrogen dioxide, and organic aldehydes. Typical concentrations of these contaminants in work areas are given and the need for adequate ventilation is stressed.

-- J. Occ. Med. Absts.

- 585 The Design of a Medical Laser Laboratory. A Planned Structure to Reduce the Occupational Hazards of Laser Research. L. Goldman and P. Hornby. Arch. Environmental Health 10, 493-497 (March, 1965).

In the rapid development of laser technology, protection of personnel must not be forgotten. Much more data are needed, on the hazards of the immediate effects of high energy lasers as well as the later effects of exposure to all forms of laser radiation. However, with our present knowledge, particular emphasis should be placed on adequate shielding of eyes and the skin from laser radiation. This emphasis should not be to the exclusion of protection from the ancillary units of laser systems.

-- Authors' summary

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