Abstract of IIW Documents Technical Commission VIII

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1. Welding : Ocular problems

VIII—2032-83.

There is no special risk of damage to the eyes of those who wear contact lenses near welding operations provided simple precautionary measures are taken regarding the duration of wear and maintenance of the lenses. For further information refer document : VIII—2008-83.

VIII—2013-83.

Welding light from MIG arc commonly produces superficial keratitis. However, changes in the corneal endothelial cells may also be seen in exposed workers.

VIII—936-81.

Fluorides in the fumes produced by basic electrodes cause prolongation of retinal adaptation time.

2. Welding & Safety

VIII—978-81.

Straw catching fire from welding sparks, welding operations carried out in the vicinity of animals, faulty insulator, strong wind blowing spark, on to grazing cattle were the source of danger to animals from electric arc welding. Preventive measures are suggested to avert similar accidents.

VIII—974-81

Violation of operational & safety precautions by a welder or his superior are examples of failures caused by electric arc welding.

VIII—975-81

In most cases of fire hazards caused by electric arc welding the welding was carried out in the centre. Preventive measures are suggested.

VIII—976-81

Explosions in electric arc welding may be due to :—Barrels containing flammable material, sparks from welding, laquer situated nearby, welding operations on barrels containing unknown material, welding in concealed & unclean spaces.

Document—929-81

Deals with welding and cutting (Safety & Health) on underwater welding & cutting.

3. Welding fumes—environmental, monitoring & control

VIII—2097-83

It is not only the chemical constitution of the fume but also its microscopical properties that determine the biological effects.

VIII—2014-83

Since Ferri magnetic mineral particles constitute more than 30% of welding fumes magnetopneumography can be used as a tool in detecting and quantifying the lung deposited particles.

VIII—2019, 20 & 21-83

The rate of formation of welding fumes which are chemically complex and whose constitution depends on so many factors, can be controlled by suitably altering the flux coating of the electrode.

IIW/IIS VIII-83

Carbon-di-oxide in a welding fume can be estimated titrimetrically by its action on a standard barium hydroxide solution.

IIW/IIS—VIII-83

Chromium fumes, collected on a microfilter are looked for chromium (VI) either by Roodionuclide X-ray fluorescene analysis, by Neutron activation analysis, by diphenyl carbazide colorimetrically or by atomic absorption spectroscopy.

IIW/IIS—VIII-83

Nitrogen oxides in a welding fume can be estimated by the quantitative formation of nitrosophenol-di-sulphonic acid in an alkaline medium.

IIW/IIB—VIII-83

Ozone is evaluated by its quantitative reaction on eugenol forming formaldehyde.

IIW/IIS—VIII-83

Fluoride is estimated titrimetrically using a standard thorium nitrate in presence of alizarine dye.

VIII—1066-83

Some modifications can be made in MIG welding whcih will reduce the amount of fume formed and at the same time will not affect the quality of the weld.

VIII—1052-82
Electron paramagnetic Resonance (EPR) technique can be used in arriving at the valency pattern of manganese in a welding fume.

VIII—1051-82
Structural analysis of the welding fumes can be made with the help of electron spectroscopy, X-ray and IR spectroscopy.

VIII—1050-82
X-ray floroscent method can be used in detecting and quantifying iron, manganese, chromium, titanium, calcium, potassium, silicon, aluminium and magnesium in a welding fume.

VIII—1039-82
Not only welders, but also workers in chromate manufacturing unit, electroplating industries, ferrochrom industries, tanneries and chromium pigment industry are exposed to chromium.

VIII—1038-82
Various analytical techniques are available for the estimation of chromium (VI) in air.

VIII—1029-82
Welding particulates are originally 0.1 micron in size, but flocculate to 1.0 micron and still grow further as they reach the breathing zone of the welder.

VIII—993-81, 1020-82
The chemical composition of the welding fume depends on that of the electrode covering while the quantity of fume produced depends on welding conditions.

VIII—1020-82
The use of transmission electron microscope and that of X-ray diffraction in the investigation of fumes emitted is duscussed in this paper.

VIII—1019-82
An equipment for the experimental production of fume from semi-automatic electric arc welding processes has been developed.

VIII—1018-82
A design is arrived at with which the mechanism of fume formation can be understood.

VIII—1017-82
Difficulties in the estimation of total chromium and chromium (VI) in a welding fume are discussed.

VIII—1016-82
The professional development of occupational hygiene is the need of the hour.

VIII—1015-82
Analytical techniques involved in the estimation of chromium in welding fumes.

VIII—993-81
Investigations on fumes generated by shielded metal arc welding are discussed.

VIII—992-81
Sampling and analysis of fumes generated during welding and allied processes are discussed.

VIII—990-81
A report on a 3 years monitoring of noise in different metal and welding shops is discussed here.

VIII—986-81
The use of a micro computer controlled rapid scan spectroradiometer in the measurement of UV radiation during arc processes.

VIII—981-81
The use of internal ballast water tank is suggested for the purposes of reducing particulates that emanate in very high concentrations during plasma cutting.

VIII—979-81
Monitoring personal exposure to stainless steel welding fumes in confined spaces at a petrochemical plant is discussed.

VIII—973-81
A catalogue that provides a list of aerosols and gases that are let off during brazing, welding and cutting.

VIII—941-81
Controlled generation of welding fumes for the purposes of toxicological investigations is discussed.

VIII—939-81
The need for biological thresholds for various air contaminants is stressed.

VIII—935281
Transition between tri and hexavalence of chromium in different mediums is discussed.

VIII—932-81
American Welding Society's specifications on the laboratory methods to be employed in the estimation of fume generation rates found mention in this paper.

Errata

Correct Answer to WELDING QUIZ, July, 1985. pg. 76.

Please read the correct answers as follows :—Question 1—(c), not (a). Question 11—(b) (e), not (b), (c).