
DATA SHEET FOR GOUGING CARBONS

Electrodes operating in AC produce the same compounds and traces of rare oxides. Analyses carried out in the USA have proved them to be non-toxic.

It has been able to detect in laboratories, during tests with certain carbons, chlorine vapours due to washing with chlorinated solvents which have not completely evaporated and smoke produced by impregnation with organic matter.

B6.1.2 THE PROCESS

The application of the gouging process produces two kinds of hazards :

1. The emissions of dust particles

The dust particles emitted during gouging are listed in the table below with their highest admissible concentrations :

Compounds	Highest Admissible concentration mg/m ³	References
Iron Oxide	10	USA/ACGTH
Manganese Oxide	5	“
Zinc Oxide	5	“
Nickel Oxide	1	“
Cobalt Oxide	0.5	“
Lead Oxide	0.2	“

The admissible concentrations are not to be exceeded near the gouging operator. Ventilation may become necessary near the operator if he is working in a confined space.

2. Noise

The noise produced by the electrical arc increases with the electrode diameter. There is also the noise due to the compressed air. The noise intensity may exceed 100 db in the frequency range from 1000 to 8000 Hz.

3. Operator Protection

- a) Dust – principally of iron oxide capable of inducing siderosis, a pulmonary disease. The fume extraction nozzle needs to be placed as near as possible to the source of the smoke and to be sufficiently powerful for the removal of all particles.

b) Ear plugs and ear muffs need to be worn.

The arc light must be shielded from the eyes by using Lens shade 13 or 14, according to French Afnor standards No. 11003, 11004 and 11005 (USA-AWS specs No. 12 or 14 glasses). Otherwise the gouging station has to be conceived such as to protect the operator against the direct perception of the arc by fixed or moveable screens.

c) Arc Rays and Heat Radiation

- i) A head or hand screen with the appropriate lens will need to be used.
- ii) Welding, asbestos or aluminium gloves should be worn to protect the arms. Leather aprons and gaiters should be worn to protect the body.

TABLE OF GASSES - HIGHEST ADMISSIBLE CONCENTRATIONS

Substances			According AC26 (CTIF) Highest admissible concentration mg/m ³	
Nitrogen monoxide	NO		30	France
Nitrogen dioxide	NO ²		9	I.N.R.S.
Ozone	O ₃		0.2	I.N.R.S.
Carbon monoxide	CO		55	I.N.R.S.
Copper oxide	CuO		0.1	USA AC91H