

Occupational & Industry Risks to Fertility

Known and suspected reproductive hazards by industry:

Artists & jewellers

- Boron and boric acid
- Cadmium and compounds
- Lead and lead compounds

Auto manufacturing and repairs

- Aromatic hydrocarbons (benzene, toluene, xylene)
- Carbon monoxide
- Chlorinated hydrocarbons (solvents)
- Epichlorohydrin
- Formaldehyde
- Glycol ethers
- Heat, extreme
- Lead and lead compounds
- Vinyl chloride

Chemical workers

- Anaesthetic gases
- Aromatic hydrocarbons
- Arsenic and compounds
- Boron and boric acid
- Chlorinated hydrocarbons
- Dimethyl sulphate
- Epichlorohydrin
- Ethylene dibromide (EDB)
- Ethylene oxide
- Mercury
- Pesticides
- Selenium

Clothing, textile and leather

- Arsenic and compounds
- Boron and boric acid
- Carbon disulfide
- Dimethyl sulphate
- Dimethylformamide (DMF)
- Epichlorohydrin
- Ethylene dibromide (EDB)
- Ethylene oxide

Electrical workers

- Boron and boric acid
- Carbon disulfide
- PCB's and PBB's

Electronic and semiconductors

- Aromatic hydrocarbons (benzene, toluene, xylene)
- Arsenic and compounds
- Cadmium and compounds
- Chlorinated hydrocarbons
- Glycol ethers

Food workers

- Chlorinated hydrocarbons (solvents)
- Ethylene oxide
- Heat, extreme
- Pesticides

General manufacturing

- Aromatic hydrocarbons
- Cadmium and compounds
- Chlorinated hydrocarbons
- Epichlorohydrin
- Formaldehyde
- Glycol ethers
- Lead and compounds
- Styrene, vinyl chloride

Glass and Pottery Workers

- Arsenic and compounds
- Boron and boric acid
- Heat, extreme
- Lead
- Manganese
- Non-ionising radiation

Hospital and healthcare

- Anaesthetic gases
- Carbon disulphide
- Ethylene oxide (EtO)

Some substances known or suspected of harming reproductive health:

1. Lead – used in making storage batteries and old paints: Fewer sperm, sperm that move more slowly than normal (decreased sperm motility) and more abnormal shaped sperm (increase malformation of sperm / poor sperm morphology)

2. DBCP (dibromochloropropane) - a soil fumigant now banned in UK: Mutagen, lowered sperm count, testicular dysfunction

3. Ionising and non-ionising radiation – the former found in nuclear plant and medical facilities, the latter in high voltage switchyards and in communication facilities: Possible damage to sperm cells and lowered fertility

4. Anaesthetic gases – Unexposed female are thought to have higher than normal number of miscarriages

5. Vinyl chloride – used in plastic manufacturing: Unexposed female partners are thought to have more miscarriages and stillbirths

6. Kepone – used as a pesticide: Possible loss of sex drive, lowered sperm count and slower movement of sperm

7. Heat stress – occurring in foundries, smelters, bakeries and farm work: Lowered sperm count and sterility.

8. Carbon disulfide – used in the manufacture of viscose rayon, and as a fumigant:: Possible loss of sex drive, impotence and abnormal sperm.

9. Oestrogen - used in manufacture of oral contraceptives: Possible loss of sex drive and enlarged and sore breasts

10. Methylene chloride – used as a solvent in paint strippers: Possible very low sperm count and shrunken testicles

11. EDB (Ethylene dibromide) – used as an ingredient in leaded gasoline, and as a fumigant on tropical fruit for export: Possible lowered sperm count and decreased fertility in female partners of workers.

References:

Barlow, Susan M & Sullivan, Frank (1982) *Reproductive Hazards of Industrial Chemicals, an Evaluation of Animal and Human Data*. Academic press, London – Hricko, Andrea

Cassaret & Doull, *Toxicology* – is probably the best comprehensive textbook and has a section on reproductive hazards.