



Precision Instruments

Medium Risk Sector



Processing of metal and plastics into precision instruments such as watches and clocks, optical and photographic instruments or medical equipment. For manufacturing of electrical equipment and machinery refer to the related 'Electronic Products' sector

Related Sectors:

- Iron, Steel and other Metals
- Metal Products and Machinery
- Electronic Products



Production Processes

Precision instruments such as watches and clocks, optical and photographic instruments, medical equipment, musical or navigation instruments, etc. are made of metal, glass, electrical and electronic components.

Overall, production processes are similar to the electronics industry and the metal and machinery sector. The challenge in manufacturing precision instruments is often the small size of the parts to be assembled, the expensive raw materials and substances involved and the high requirements regarding precision and quality.

Given the small size of components, the usually small series of instruments produced and the high quality standards, assembling is often done by hand.

Sustainability Issues

M	Energy
M	Water Use
H	Emissions to Water
M	Waste
M	Emissions to Air
L	Ecosystems
L	Workplace Health & Safety
L	Disaster Risk
H	Site Contamination

Sector Rating

- H High risk issue
- M Medium risk issue
- L Low risk issue

Risks & Opportunities

- **The contamination of property presents a risk to its value, to human health and to the environment.**
Spills of liquids in production and disposal of liquid waste may contaminate buildings and the ground. This may present a risk to groundwater resources or to human health. Clean-up costs may be considerable. The market value of contaminated property may be impaired. Contaminations can be avoided by training of staff and technical measures.
- **Wastewater and liquid waste may contain toxic substances which present a risk to water quality.**
Potential water pollutants are: Plating solutions from electroplating (containing heavy metals, cyanides, fluorides etc.), chlorinated solvents used for degreasing, oil and grease, cutting and drilling liquids.
- **Waste produced in precision instruments manufacturing may be small, but some of it will be hazardous waste.**
Potential sources of hazardous waste produced in metals and machinery manufacturing: Sandblasting (grit), wastewater treatment and electroplating (sludges), cleaning and ventilation (dust). Recycling options and the appropriate disposal of hazardous waste improve efficiency and minimize environmental impact.
- **Emissions to air come mainly in the form of metal dust and solvents from varnishes and paints.**
Volatile solvents from paints and surface treatment may present a temporary nuisance and a health risk for residents in the surrounding areas. Metal dusts can result in long-term contamination and poisoning. Appropriate ventilation and filters can effectively minimize emissions to air.