

# International Hazard Datasheets on Occupation



## Plumber (maintenance)

### What is a Hazard Datasheet on Occupation?

This datasheet is one of the International Datasheets on Occupations. It is intended for those professionally concerned with health and safety at work: occupational physicians and nurses, safety engineers, hygienists, education and information specialists, inspectors, employers' representatives, workers' representatives, safety officers and other competent persons.

This datasheet lists, in a standard format, different hazards to which plumbers (maintenance) may be exposed in the course of their normal work. This datasheet is a source of information rather than advice. With the knowledge of what causes injuries and diseases, it is easier to design and implement suitable measures towards prevention.

This datasheet consists of four pages:

- Page 1: Information on the most relevant hazards related to the occupation.
- Page 2: A more detailed and systematized presentation on the **different hazards** related to the job with indicators for preventive measures (marked as numbered shields and explained on the third page).
- Page 3: Suggestions for **preventive measures** for selected hazards.
- Page 4: **Specialized information**, relevant primarily to occupational safety and health professionals and including information such as a brief job description, a list of tasks, notes and references.

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### Who is a plumber?






A worker who maintains and repairs plumbing, does assembly, installation and repair of pipes, fittings, and fixtures of water supply, waste disposal, and heating systems for buildings.

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### What is dangerous about this job?

- Plumbers working in sewerage systems may be severely hurt and even killed by releasing toxic gases and by the deficiency of oxygen.
- Plumbers are at an increased risk of slips and falls.
- Plumbers' work often involves significant physical efforts, handling heavy loads, uncomfortable work postures, and continuous repetitive movements. This may result in traumas and, in the course of time, back, hands and arms pains.

## Hazards related to this job

<b>Accident hazards</b> 	<ul style="list-style-type: none"> <li>Falls from height, esp. when standing/working on ladders</li> </ul>	1
	<ul style="list-style-type: none"> <li>Slips, trips and falls (esp. while carrying heavy or bulky loads)</li> </ul>	2
	<ul style="list-style-type: none"> <li>Slips, trips and falls (esp. while carrying heavy or bulky loads)</li> </ul>	2
	<ul style="list-style-type: none"> <li>Cuts and injuries caused by sharp instruments and tools</li> </ul>	
	<ul style="list-style-type: none"> <li>Hazard of suffocation from asphyxiant gases released in sewerage systems, or from oxygen deficiency, during maintenance and cleaning operations</li> </ul>	3
	<ul style="list-style-type: none"> <li>Burns caused by hot parts of equipment, steam lines, etc., or by release of hot water or steam</li> </ul>	4
	<ul style="list-style-type: none"> <li>Electric traumas, caused by defective installations and equipment (esp. portable)</li> </ul>	
	<ul style="list-style-type: none"> <li>Musculoskeletal injury (esp. of back ), resulting from lifting and moving of heavy loads</li> </ul>	5
<b>Physical hazards</b> 	<ul style="list-style-type: none"> <li>Exposure to cold and/or heat stress, as a result of rapid movement between cold and hot areas [See Note 1]</li> </ul>	
	<ul style="list-style-type: none"> <li>Exposure to UV radiation during welding operations</li> </ul>	6
<b>Chemical hazards</b> 	<ul style="list-style-type: none"> <li>Exposure to various chemicals, such as: adhesives, caulking compounds, fluxes (solder), hydrochloric acid, zinc chloride, tar and solvents, various greases, and inorganic lead [See Note 2]</li> </ul>	
<b>Biological hazards</b> 	<ul style="list-style-type: none"> <li>Exposure to parasites, such as hookworm, ascaris, and various mites, chiggers, and ticks [See Note 3]</li> </ul>	
<b>Ergonomic, psychosocial and organizational factors</b> 	<ul style="list-style-type: none"> <li>Repetitive strain injury (RSI) and other musculoskeletal problems as a result of continuous repetitive movements (e.g., screwing), overexertion during lifting and moving of heavy loads, work in awkward (bent, etc.) postures</li> </ul>	5
	<ul style="list-style-type: none"> <li>Psychological stress due to dissatisfaction at work as a result of boredom, monotony, low salary, problematic personal relations with peers and/or superiors</li> <li>General ill feeling as a result of work in confined spaces and development of "sick-building syndrome"</li> </ul>	

### Preventive measures

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- 1** Inspect ladder before climbing. Never climb on a shaky ladder or a ladder with slippery rungs
  - 2** Wear safety shoes with non-skid soles
  - 3** Observe all recommended safety precautions for entering a confined space
  - 4** Use heat-insulating gloves to handle hot parts. Wear heat-protective gloves and face and eye protection against hot gases or splashes of hot liquids
  - 5** Learn and use safe lifting and moving techniques for heavy or awkward loads; use mechanical aids to assist in lifting
  - 6** Wear welding helmet with UV protection during welding
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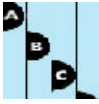
**Specialized information**


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**Synonyms** Pipefitter; sewage worker, maintenance; "Installator", maintenance

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**Definitions and/or description**



Assembles, installs, and repairs pipes, fittings, and fixtures of heating, water, and drainage systems, according to specifications and plumbing codes. Studies building plans and working drawings to determine work aids required and sequence of installations. Inspects structure to ascertain obstructions to be avoided to prevent weakening of structure resulting from installation of pipe. Locates and marks position of pipe and pipe connections and passage holes for pipes in walls and floors, using ruler, spirit level, and plumb bob. Cuts openings in walls and floors to accommodate pipe and pipe fittings, using handtools and power tools. Cuts and threads pipe, using pipe cutters, cutting torch, and pipe-threading machine. Bends pipe to required angle by use of pipe-bending machine or by placing pipe over block and bending it by hand. Assembles and installs valves, pipe fittings, and pipes composed of metals, such as iron, steel, brass, and lead, and nonmetals, such as glass, vitrified clay, and plastic, using handtools, and power tools. Joins pipes by use of screws, bolts, fittings, solder, plastic solvent, and caulks joints. Fills pipe system with water or air and reads pressure gauges to determine whether system is leaking. Installs and repairs plumbing fixtures, such as sinks, commodes, bathtubs, water heaters, hot water tanks, garbage disposal units, dishwashers, and water softeners. Repairs and maintains plumbing by replacing washers in leaky faucets, mending burst pipes, and opening clogged drains. May weld holding fixtures to steel structural members.

Supervises and coordinates activities of workers engaged in assembly, installation and repair of pipes, fittings, and fixtures of heating, water supply, and waste disposal systems for buildings, etc.

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**Related and specific occupations**

Plumber (construction); plumber apprentice; plumber helper; plumber supervisor; sewage disposal worker; and various other occupations classified in DOT under the group-title "plumbers, gas fitters, steam fitters, and related occupations", as well as various occupations listed under the group title "Occupations in disposal of refuse and sewage"

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**Tasks**

Adjusting; assembling; attaching; bending; blowing; bolting; brazing; breaking (floors, walls, etc.); building; checking; cleaning; climbing; connecting; contracting; cutting; designing; disassembling; drilling; filling; filling; flooring; gluing; greasing; grinding and honing; handling; inserting; inspecting; installing; laying and leveling (pipelines); lifting and lowering; locating; lubricating; maintaining; manufacturing (accessories, parts, etc.); marking; measuring; mending; moving; observing; plastering; polishing; preparing; pulling and pushing; receiving (shipments, etc.); regulating; releasing; removing; repairing; replacing; riveting; sawing; scraping; screwing; sealing; strengthening; tending; threading; welding

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**Primary equipment used**

Handtools; measuring tape; pipe cutters; pipe-bending machine; plumb bob; power tools; ruler; spirit level; etc.

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**Workplaces where the occupation is common**

All industries, trades, services and institutions

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**Notes**



- Some individuals develop hypersensitivity reactions when exposed to cold.
  - Exposure to greases** : Folliculitis and acneform dermatoses including chloracne characterized by plugged sebaceous follicles and nodular and suppurative lesions. These dermatoses are caused by contact with insoluble greases.

**Exposure to inorganic lead** : May occur during high temperature (above 500°C) operations such as welding. The symptoms are decreased physical fitness, fatigue, sleep disturbance, headache, digestive symptoms, abdominal pains, etc.

**Exposure to zinc chloride** : Solid zinc chloride is corrosive to the skin and mucous membranes. Aqueous solutions of 10% or more are also corrosive and cause primary dermatitis and chemical burns; extremely dangerous to the eyes.

**Exposure to hydrochloric acid** : Hydrochloric acid is highly corrosive to eyes, skin, and mucous membranes.
  - Ancylostomiasis or hookworm infection is considered to be one of the worst because of its pathogenic effects and widespread dissemination. Other parasites that constitute a biological hazard are: the ascaris nematode that causes ascariasis; and various mites, chiggers, and ticks.
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**References**

Encyclopaedia of Occupational Health and Safety, 3rd Ed., ILO, Geneva, 1983, Vol. 1, p. 235 - 236, 839-891.



Adams, R.M.: Occupational Skin Diseases. Saunders Co., Philadelphia, 1990, p. 651 - 652.

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