

# International Hazard Datasheets on Occupation



## Printer

### 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 printers 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  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.

### Who is a printer?

A worker who reproduces data, documents or designs by mechanical transfer of ink, dye or toner to the surface of paper or other material with the aid of type, plates, rollers, and the like; produces copies of designs or lettering by transferring ink or pigment on type, plates, or rollers to paper or similar materials by means of a printing press, cylinder presses, offset presses, platen presses; or other printing equipment

### What is dangerous about this job?

- Injuries such as cuts, amputations, crushing, caused by moving machinery or sharp edges, in particular guillotines, printing presses and stapling machines may cause contusions, etc. Printers are exposed to printing inks, toners, dyes, organic solvents, cleaning formulations, etc. The use of hand tools, mixing equipment, etc. may cause mechanical hazards. A fire hazard exists in printing shops. There are ergonomic problems, related to overexertion and fatigue

### Hazards related to this job

Specific preventive measures can be seen by clicking on the respective  in the third column of the table.

Accident hazards		
	<ul style="list-style-type: none"><li>• Slips, trips and falls, in particular on wet floors or cluttered passages or when carrying loads</li></ul>	
	<ul style="list-style-type: none"><li>• Blows from falling objects, in particular from overhead conveyers</li></ul>	
	<ul style="list-style-type: none"><li>• Blows and contusions from moving machinery</li></ul>	

	<ul style="list-style-type: none"> <li>Entanglement between cylinders and rollers, between strong webs and reels at reel-up stands (printing machines), folding machines, and other moving or rotating machinery or equipment</li> </ul>	2
	<ul style="list-style-type: none"> <li>Cuts and amputations by blades and other sharp edges (e.g., guillotines)(see Note 1)</li> </ul>	2
	<ul style="list-style-type: none"> <li>Cuts and pricks from stitching machines</li> </ul>	2
	<ul style="list-style-type: none"> <li>Cuts and lacerations to the fingers and hands</li> </ul>	2
	<ul style="list-style-type: none"> <li>Fire risks from flammable materials, in particular paper, cardboard and organic solvents</li> </ul>	3
	<ul style="list-style-type: none"> <li>Burns from binding machines using hot-melt adhesives</li> </ul>	
	<ul style="list-style-type: none"> <li>Splashing of molten metal during type casting</li> </ul>	3
	<ul style="list-style-type: none"> <li>Electric shock or electrocution caused by contact with faulty insulation or portable electric tools, in particular during maintenance or repair operations</li> </ul>	4
	<ul style="list-style-type: none"> <li>Acute poisoning by plating-bath ingredients during "electrotype" processes</li> </ul>	5 6 7
<b>Physical hazards</b>	<ul style="list-style-type: none"> <li>Exposure to laser light</li> </ul>	
	<ul style="list-style-type: none"> <li>Exposure to noise: noise levels in printing shops may exceed 100 dBA</li> </ul>	8
	<ul style="list-style-type: none"> <li>Exposure to UV radiation used for curing</li> </ul>	
	<ul style="list-style-type: none"> <li>Exposure to whole-body vibration from printing presses</li> </ul>	
<b>Chemical hazards</b>	<ul style="list-style-type: none"> <li>Chronic poisoning by lead, nickel and other metal salts, in particular in hot-casting or "electrotype" processes, or in photographic plate development</li> </ul>	5 6
	<ul style="list-style-type: none"> <li>Exposure to polycyclic aromatic hydrocarbons (PAH) in toners and inks; this is a pronounced hazard through both inhalation and skin contamination</li> </ul>	5 6
	<ul style="list-style-type: none"> <li>Mists released from isocyanates can lead to severe sensitization problems and allergic dermatitis</li> </ul>	
	<ul style="list-style-type: none"> <li>Exposure to printing inks may cause dermatitis; acrylates present in inks are potential skin and respiratory sensitizers. Ethylene-glycol ethers are only mildly irritating to the skin. Vapor may cause conjunctivitis and upper respiratory tract irritation. Acute exposure to ethylene-glycol ethers results in narcosis, pulmonary edema, and severe kidney and liver damage</li> </ul>	9
	<ul style="list-style-type: none"> <li>Exposure to oxalic acid has a corrosive action on the skin, eyes, and mucous membranes, which may result in ulceration. Chronic exposure to mist has been reported to cause chronic inflammation of upper respiratory tract</li> </ul>	
	<ul style="list-style-type: none"> <li>Exposure to tetrachloroethylene may cause a dry, scaly, and fissured</li> </ul>	

	dermatitis, central nervous system depression, hepatic injury, and anesthetic death	9
	<ul style="list-style-type: none"> <li>Exposure to trichloroethylene may cause irritation of the eyes, nose, and throat, depression of the central nervous system exhibiting such symptoms as headache, dizziness, vertigo, tremors, nausea and vomiting, irregular blurred vision</li> </ul>	9
	<ul style="list-style-type: none"> <li>Phosgene - a lethal poisonous gas - may be formed if chlorinated solvents such as trichloroethylene are decomposed in contact with a flame or hot surface, or if a worker smokes in the presence of their vapors (For a list of additional hazardous materials used in printing, see Note 2)</li> </ul>	
<b>Biological hazards</b> 	<ul style="list-style-type: none"> <li>Printing shops located in cellars or older buildings may be infested with rodents, insects, etc., exposure to which may cause transfer of diseases to the workers</li> </ul>	
	<ul style="list-style-type: none"> <li>Some printing media support bacterial growth and thus may present a hazard of bacterial exposure</li> </ul>	
<b>Ergonomic, psychosocial and organizational factors</b> 	<ul style="list-style-type: none"> <li>Fatigue, Musculo-skeletal injuries, back pain or hernia due to lifting and transport of heavy loads, or exertions during manual tasks</li> </ul>	10
	<ul style="list-style-type: none"> <li>Eye strain, in particular during proofing work and examination of negatives</li> </ul>	
	<ul style="list-style-type: none"> <li>Stresses and family problems caused by tight work schedules, shift- and night work, in particular in newspaper printing shops</li> </ul>	

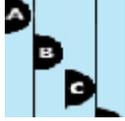
## Preventive measures

- 1 Use safety shoes or boots with non-slip soles, and/or safety helmet
- 2 Install machinery guards to prevent amputations
- 3 Obey all fire department safety instructions regarding the storage and handling of paper and flammable material
- 4 Check electrical equipment for safety before beginning work. Call a qualified electricity technician to examine suspect equipment
- 5 Install effective exhaust ventilation and air conditioning to prevent air contamination and heat- -stress; use odor neutralizers if appropriate
- 6 Wear personal protective equipment and chemical resistant clothing to avoid exposure of skin or eyes to corrosive solids, liquids, gases or vapors
- 7 Wear safety goggles in all cases where the eyes may be exposed to dust, flying particles, or splashes of harmful liquids
- 8 Wear hearing-protection aids, if necessary
- 9 Use appropriate personal protection equipment

## Specialized information

**Synonyms** Printing press operator; printing shop worker; print/printing worker

**Definitions and/or description** Printing and related trades workers set and arrange printing type or copy by hand or electronic keyboarding or other machines, make printing plates from typographically or electronically set-up type or copy, engrave lithographic stones, printing plates and rollers, make and print with silk-screens, print on paper and other materials, or bind and finish books. Tasks performed usually include: setting and arranging printing type or copy by hand or by electronic keyboarding or other machines; making printing plates from typographically or electronically set-up type or copy; engraving lithographic stones, printing plates, rollers, dies and blocks; making and printing with silk-screens; printing on paper and other materials; binding covers to books and performing book-finishing operations. Supervision of other workers may be included. Occupations in this minor group are classified into the following unit groups: Compositors, typesetters and related workers; Stereotypers and electrotypers; Printing engravers and etchers; Photographic and related workers; Bookbinders and related workers; Silk screen, block and textile printers [according to DOT].



**Related and specific occupations** Cylinder-press operator; engraving-press operator; feeder; offset-press operator; platen-press operator; printing-machine operator; printing shop supervisor; web-press operator; or specific occupations according to type of equipment or material used, e.g.; printer on plastic; printer on metal; bag printer; box printer; cardboard printer; cloth printer; flexographic-press operator; hardboard panel printer; silk-screen printer, etc.

**Tasks** Adjusting; arranging; attaching; carrying; checking; classifying; cleaning; connecting; controlling; cutting; elevating; engraving; feeding; filling; grinding; gluing; inking; installing; labeling; loading; locating; lubricating; maintaining; marking; moving; operating; positioning; pressing; readjusting; regulating; recording; starting; supplying; tagging; transferring; transporting;

**Primary equipment used** Guillotines; hand tools: knives, scissors, etc.; lathes; mixing-equipment; printing presses; ruling machines; stapling and binding machines

**Workplaces where the occupation is common** Newspapers and publishing houses; printing shops; printing departments in large institutions - universities, schools, banks, government offices, industrial enterprises, etc.

- Notes**
1. Guillotines are probably the most dangerous piece of equipment in printing shops and, accordingly, particular care must be taken to provide adequate guarding and safety training for their use
  2. Examples of hazardous materials that may be used in a printing shop (depending on the printing technique used) include: acrylic and epoxy resins, greases and waxes, gum-Arabic, alcohols (in particular isopropanol), bactericidal agents, n-hexane, toluene, glycol ethers, turpentine, ketones, acids and alkalis, soaps and detergents, white spirit, chlorinated hydrocarbons, rosin, and various dyes based on indoline, aniline, toluidine, diamino, azo-, etc.



**References** ILO Encyclopaedia of Occupational Health and Safety, 3rd Edition, Parmeggiani, L., Editor, ILO Geneva, 1982



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Adams R.: Occupational Skin Diseases, 2nd Ed., pp. 654-659, Saunders, 1990

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