International Hazard Datasheets on Occupation

Operator, incinerator

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 operator, incinerators 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, 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 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 an incinerator operator?

A worker who operates incinerator furnaces that burn refuse: sludge, trash, and garbage.

What is dangerous about this job?

- Incinerators work at a high heat, which put their operators at a risk of burns.
- The heat may lead to fires, carbon monoxide poisoning, etc.
- During burning refuse may yield substances that may be hazardous or even poisonous.
- The incinerator operators' job is physically hard and may lead to pain and other problems in hands, arms, the lower back and other body parts.
- Incinerator operators work in a noisy, hot and humid environment that may cause tiredness and general ill feeling.

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	• Falls from ladders, stairs and elevated platforms while operating and maintaining the incinerator equipment, esp. hopper	
	• Slips and falls on the level, particularly on floors that are slippery or covered with spilled fuel, debris, etc.	1
	• Falls of trash containers and other heavy loads on legs	1
	• Struck by flying ashes and debris, incl. penetration into eyes	2 3
	• Burns caused by contact with hot surfaces of furnaces, by back-fire while igniting burners, or by flying hot ashes and debris	
	• Acute poisoning by carbon monoxide or by other combustion products in the air, particularly in the case of faulty ventilation or inadequate air supply to the burners	4 5
	• Acute poisoning (primarily by means of inhalation) caused by hazardous components of refuse and its combustion products	

	• Punctures and cuts while using stoking hoe, spade, scrap iron and other tools	
	• Fires and explosions caused by flammable or explosive components of refuse, or by fuel (particularly from fuel leaks)	
Physical hazards	• Exposure to high levels of noise	6
	• Exposure to heat while continuously working near furnaces, esp. when their doors are open	2
	• Exposure to abrupt changes from heat to cold and vise versa while entering and exiting the incinerator room in cold weather	
Chemical hazards	• Chronic exposure, by inhalation, skin and eye contact and digestion, to hazardous (incl. poisonous) components of refuse prior to incineration, during transportation, loading, spreading, etc.	7
	• Chronic exposure, primarily by means of inhalation, to hazardous (incl. poisonous) products of thermal degradation of refuse [See Note 1]	7
	• Hazards associated with work in confined space [See Note 2]	
Biological hazards	• Exposure to biologically contaminated refuse containing microorganisms and other toxic products, esp. refuse from medical facilities, laboratories, sewage sludge, etc.	
Ergonomic, psychosocial and organizational factors	• Cumulative trauma disorders as a result of continuous repetitive movements or over-strenuous efforts	
	• Back pains and other musculoskeletal problems (including lesions of intervertebral discs) resulting from overexertion and awkward postures, during operations of loading, unloading, spreading, agitating, repair of linings, etc.	8
	• Exposure to obnoxious (sometimes offensive) odors of refuse and its combustion products	
	• General tiredness as a result of heavy physical work in a hot, noisy and filthy environment	
	• Psychological stress caused by dissatisfaction at work as a result of monotony, low salary, social status, shift work (incl. in night shifts), etc. [See Note 3]	

Preventive measures

1. Wear safety shoes with non-skid soles
2. Wear long-sleeve shirts and protect hands with metal-mesh or other protective gloves
3. Wear appropriate eye protection; consult a safety supervisor or a supplier
4. Install effective exhaust ventilation to prevent air contamination; add local exhaust ventilation if necessary
5. Arrange for periodic inspection of incinerator vessel integrity, to detect metal cracking, etc.
6. Wear hearing protection appropriate for the noise levels and type of noise - consult the supplier or an expert
7. Wear respiratory protection during maintenance or other work in which dust and noxious gases may be released into the atmosphere
8. Learn and use safe lifting and moving techniques for heavy or awkward loads; use mechanical aids to assist in lifting

Specialized information

Synonyms

Incinerator attendant; incinerator plant worker

Definitions and/or description

Tends one or more incinerator furnaces that burn refuse, such as sludge, trash, and garbage: Pulls mechanism to release refuse from hopper into incinerator. Move levers to adjust blowers and dampers that regulate airflow and temperature, and to control charging, discharging, and quenching mechanisms of furnace. Opens furnace door and agitates burning refuse to facilitate combustion, using stoking hoe. Moves levers to open grate and drop ashes and noncombustible material from furnace at end of burning cycle. Replaces refractory linings of furnace, using firebrick and mortar. Cleans debris from furnace room floor, using rake and broom. May assist supervisor, incinerator plant in maintenance and repair of cranes, conveyor equipment, and exhaust system, using handtools [DOT, incinerator operator I (sanitary ser.)]

Related and specific occupations

Incinerator plant laborer; supervisor, incinerator plant; waste transportation driver; waste treatment operator

Tasks

Activating (burners), adjusting (blowers, dampers); checking; chipping; cleaning; detecting (malfunctions); feeding (refuse, fuel); filling; firing; fixing; lighting; loading and unloading (refuse, debris, fuel); maintaining (equipment); making (repairs); measuring; monitoring; moving (levers); observing; opening and closing (furnace doors); operating; pulling (levers, etc.); recording; regulating (flow, temperature); removing (ash, debris); repairing; replacing (linings); shoveling; spreading; stoking; sweeping; tending (furnaces); turning on/off

Primary equipment used

Brooms; hoist and other lifting and material handling equipment; incinerator plant equipment; machinist working tools (hammers, pliers, spanners, wrenches); personal protective clothing and equipment; rakes; scrap irons; shovels; spades; spatula (for mortar); stoking hoe

Workplaces where the occupation is common

Municipal, governmental and private waste treatment facilities; sanitary services; hospitals

Notes

1. The products of thermal degradation of refuse may include CO, SO2, NOx, hydrogen chloride, phosgene, dioxins, dibenzofurans, cyanide, isocyanates, metal fumes, etc.
2. Incinerator workers may need to regularly enter a confined space inside the furnace (e.g., for chipping slag from glass waste). Therefore, they should be subject to relevant regulations and work rules.
3. Municipal incinerator plants are often located at isolated sites, far from urban areas, which requires their workers to spend much time travelling to work and back home, contributing to psychological and personal problems.
4. Incinerator workers are reported to have an increased incidence of ischemic heart disease [Lit 1].

References

Encyclopaedia of Occupational Health and Safety, 4th Ed., ILO, Geneva, 1998, Vol.3, p. 101.22.

Levine, SP, and WF Martin (Eds.): Protecting Personnel at Hazardous Waste Sites, Butterworth Publ., Boston, 1985.

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