

## SAFETY REQUIREMENTS WHEN WORKING IN HEAT WORKS

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When working in thermal shops, a number of safety rules must be observed. Practice shows that industrial accidents are the result of inept and careless work and a consequence of the fact that measures were not taken in a timely manner to prevent danger [1].

Proper organization of the workplace is essential for safe work. For example, when using broken tongs or pliers, the product can easily slip out and cause injury or burns. It is especially important to follow a number of basic rules when operating furnaces and baths. Before igniting the oil furnace, open the chimney damper and check if the nozzle does not "leak". If the nozzle is in order, then you should open the air supply valve, and then start up the fuel oil and light it with a torch. When firing up a hot stove, you first need to bring the burning torch to the nozzle hole, then let the air in and then the fuel oil.

When igniting the fuel, the worker must be away from the inspection hole in the oven door and from the nozzle. Failure to do so can result in burns to your face and hands. It must be borne in mind that in a warm furnace, fuel oil turns into gas and, when ignited, gives a strong explosion, while the flame is knocked out of the nozzle hole. When stopping the furnace, first you need to stop the fuel oil supply, and then the air. This is necessary so that unsprayed fuel oil does not accumulate in the firebox, which can ignite unexpectedly. Place trays with sand under the nozzle to absorb spilled fuel oil.

Before lighting gas ovens, it is recommended to open the oven doors as well as the air supply valve. This is necessary in order to remove the accumulated gas from the furnace (Figure-1). When firing up gas furnaces, it is necessary to follow the same rules as for oil furnaces, that is, first you need to give air, and then gas. When using electric ovens, the basic rule must be observed - when loading and unloading the oven, as well as during its repair and inspection, the current must be turned off first. Have a rubber mat near electric ovens. It is not recommended to touch the frame of the electric oven during operation, as it may be energized. When servicing electric ovens, protect your eyes from ultraviolet rays. When using salt baths, the following basic rules should be observed [2].

Heat treatment of products in salt, saltpeter furnaces-baths is associated with increased danger, therefore, special care, caution and knowledge of safe working techniques are required from a thermist. Failure to comply with safety rules may lead to accidents associated with burns to the body, face, eyes and poisoning.



**Figure-1. Furnaces for heat treatment of metals**

A thermist should perform only that work (Fig-2), which is entrusted by the administration, and provided it is performed in safe ways. In doubtful cases, when receiving a new (unfamiliar) job, it is necessary to demand safety instructions from the master.

Before starting work, you should carefully inspect the workplace and put it in order, check the serviceability of the grounding of transformers, bathtubs. Check the serviceability of the starting devices of the thermal equipment, the suction devices of the ventilation system, the presence and serviceability of fences, prepare the tool, devices for work and make sure that they are in good working order [3].

During work, the thermist must be careful and not allow persons who are not related to the assigned work to enter his workplace. Do not touch the inductor or parts during switching on and heating. It is necessary to monitor the readings of the instruments and the presence of cooling water in the inductor, high-frequency transformer and capacitor bank. The inductor should be replaced with the voltage removed.



*Fig-2. Thermist workplaces*

Do not open the guards that protect against accidental contact with live parts. During the heat treatment of products, it is necessary to observe the established technological regime in accordance with the technological process map.

It is forbidden to work on induction electrothermal installations with faulty electrical equipment, apparatus, devices, interlocks installed on doors through which access to the buses and live parts that are energized is possible, as well as in the presence of a malfunction of the protective covers or damage to the mechanical part of the installation. In the event of a malfunction of the electrothermal installation, immediately turn off the heating and stop the quenching unit.

At the end of the work, the thermist must tidy up his workplace and inform the foreman and the supervisor about equipment malfunctions he noticed during work.

#### **Literature.**

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