

## INNOVATIVE SOLUTIONS TO PROTECT WORKERS FROM DANGEROUS GAS AND TOXIC SUBSTANCES IN HAZARDOUS INDUSTRY ENTERPRISES

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### ABSTRACT

This article reflects the deficiencies in some directions in the field of labor protection and technical safety and the recommendations for creating modern technologies and their practical application, relying on new innovative ideas to eliminate these deficiencies.

**Keywords:** Labor protection, technical safety, new innovative idea and technology, danger indicators, signaling.

### INTRODUCTION

It is known that mankind has been fighting for survival since its inception. In ancient times, the main goal of people was to find food for one day, but by the 11th century, the number of these needs increased dramatically and these numbers continue to expand. A person has to work tirelessly to satisfy these needs. This work is the result of various mental, physical and mechanized activities.

In our country, deep and large-scale reforms and the work carried out under the slogan of human value above all else, as well as the tasks defined in the Strategy of Actions on the five priority directions of the development of the Republic of Uzbekistan in 2017-2021, are being consistently implemented[1]. The development strategy of New Uzbekistan for 2022-2026, which consists of seven priority directions, developed on the basis of the principle "From the strategy of actions to the strategy of development", these program documents paved the way for the transition of our country to a completely new stage of development[2].

Every human action is risky. As long as a person works, he is always among the risk factors. These risk factors lead to human injury, health deterioration and even death. Nowadays, in every field, from industry to everyday life, mankind is using the latest technologies to improve life and activities, and this causes the risk factors to increase even more.

"Labor protection and technical safety" includes protecting people from the above risk factors and creating healthy and safe (comfort) working conditions for people. It is very important to use innovative risk indicators to protect people from harmful substances released in industrial enterprises, especially in the era where we cannot imagine our life without industry.

### **OBSERVATIONS AND RESULTS OBTAINED**

Currently, almost all industries (oil and gas, mining, mineral fertilizer production, nuclear energy, etc.) have to work with hazardous substances. Each substance has REM (permissible standard - the amount of harmful substances that do not adversely affect the health of a worker even if he works every day during the entire working period)[1,3,4]. That is, a certain amount of any optional substance is considered safe for human life, and it is required to always keep it under control.

For example, this process is carried out in gases using gas analyzers. But reality is not always what we expect. Sometimes the amount of gases and hazardous substances is left unchecked, or the production process releases large amounts of gas into the environment during simple gas pipeline repairs. Naturally, a person cannot know how many dangerous substances and gases are scattered around, and he gets poisoned under the influence of these substances, and sometimes it leads to death. It will be possible to determine the presence of toxic gases in the air by placing a GPS and a harmful gas indicator on the worker's clothing. When there is an interruption in the technological process or an emergency situation and the spread of toxic and harmful gases occurs, the warning device located on the employee's work clothes indicates the presence of harmful and dangerous gases in excess of the permitted amount by red warning light and spreading thin or thick warning signs according to the level of danger. It is possible to warn workers.

### **CONCLUSION**

As we mentioned above, human life and health are above all else. As the risk factors increase as a result of the use of new innovative technologies, it is now necessary to introduce technologies based on modern innovative projects for security.

Therefore, I suggest to use risk indicators created on the basis of technologies to identify the above-mentioned dangerous substances. These risk indicators are very compact and can be clipped to the chest pockets of the special uniforms of the workers. As soon as a person approaches an environment where hazardous substances are

dispersed, the hazard warning system is activated and starts a warning. As the amount of hazardous substance or gas increases, the sound of the alarm increases (up to 80-100 dB). An employee who notices this immediately leaves the area and warns others about it [6].

The creation of these risk indicators cannot be considered problematic today. In today's age of digital technologies, it is necessary to strengthen its implementation only in industrial enterprises. After all, human value is above all else. How many lives can be saved through this innovation. It is possible to set up an integrated notification to the head office and the labor protection department through communication networks (gps, wifi, bluetooth) if danger detectors enter a toxic area or when a worker begins to leak harmful or toxic gases at the workplace[4 ,5]. In this way, damage to the health of employees, stoppage of work at the enterprise, material, moral and physical damage to both the employer and the employee will be prevented.

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