



## OCCUPATIONAL HYGIENE OF WORKERS IN TEXTILE ENTERPRISES.

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### ANNOTATION

This article presents a hygienic assessment of working conditions in textile enterprises, focusing on harmful factors encountered during production processes, their effects on workers' health, and strategies for optimizing workplace environments. The textile industry is characterized by combined exposure to physical, chemical, ergonomic, and biological hazards that significantly increase occupational risks. The article highlights the importance of industrial sanitation, ventilation control, dust reduction, normalization of heat and noise conditions, as well as the use of personal protective equipment. The study concludes that comprehensive hygienic measures are essential for protecting workers' health in textile enterprises.

### Keywords:

textile industry, occupational hygiene, industrial dust, noise, microclimate, ergonomics, occupational risk, labor protection, industrial sanitation.

### MAIN PART

#### 1. Hygienic Characteristics of the Textile Industry

The textile industry involves multiple technological processes, including fiber cleaning, spinning, weaving, dyeing, sewing, and packaging. At each stage, workers are exposed to various physical and chemical factors.



### **Main technological stages include:**

- **Spinning** – cleaning, carding, and spinning cotton or synthetic fibers;
- **Weaving** – producing the fabric structure;
- **Dyeing and finishing** – working with chemical dyes and finishing agents;
- **Sewing** – assembling final products;
- **Packaging and storage.**

Each stage of production has specific hygienic challenges that must be considered to protect worker health.

## **2. Harmful Workplace Factors and Their Effects**

### **2.1. Industrial Dust**

Textile factories have high levels of airborne fibers and dust particles. Cotton dust may include:

- cellulose fibers,
- microorganisms,
- chemical residues.

Health effects include:

- byssinosis (cotton dust disease);
- allergic bronchitis;
- respiratory obstruction;
- chronic coughing and shortness of breath.

### **2.2. Noise and Vibration**



Spinning and weaving machines generate noise levels of **85–100 dB**, which can cause:

- hearing loss;
- headaches and fatigue;
- increased stress and irritability.

### **2.3. Microclimate Conditions**

Textile workshops often operate at **28–34°C** with humidity levels of **70–80%**. Such conditions may lead to:

- heat stress;
- dehydration and electrolyte imbalance;
- reduced work capacity.

### **2.4. Chemical Factors**

Dyeing and finishing sections employ:

- azo dyes,
- acids and alkalis,
- formaldehyde,
- organic solvents.

Their impact may result in:

- dermatitis;
- allergic reactions;
- chemical intoxication;
- irritation of the eyes and mucous membranes.



## **2.5. Ergonomic Factors**

Especially in sewing sections, workers face:

- prolonged sitting;
- repetitive motions;
- neck and back strain.

These can lead to:

- scoliosis;
- osteochondrosis;
- musculoskeletal disorders.

## **3. Hygienic Preventive Measures in Textile Enterprises**

### **3.1. Industrial Sanitation Measures**

- installation of high-efficiency ventilation systems;
- use of dust collectors and aspiration systems;
- regular wet cleaning to reduce airborne fibers;
- closed systems for handling chemicals in dyeing workshops.

### **3.2. Safety Engineering Measures**

- noise-reduction devices on machinery;
- vibration-damping equipment;
- strict compliance with electrical safety rules;
- automatic shutdown systems and alarm signals.

### **3.3. Occupational Hygiene Measures**

- regulating workplace microclimate (cooling + ventilation);



- providing adequate lighting standards;
- ensuring ergonomic workplace design;
- implementing scheduled rest breaks, especially for sewing workers.

### 3.4. Personal Protective Equipment (PPE)

Workers should use:

- respirators or dust masks;
- chemical-resistant gloves;
- protective clothing and footwear;
- ear protection devices;
- safety goggles.

PPE must comply with standards and be used consistently.

## 4. Health Monitoring of Textile Workers

To minimize occupational risks, regular health surveillance should include:

- **Pre-employment medical examinations** – assessing fitness for work;
- **Periodic medical check-ups** – focusing on respiratory, skin, and auditory function;
- **Spirometry tests** – early detection of byssinosis;
- **Laboratory analyses** – monitoring exposure to chemicals;
- **Preventive treatments** – inhalation therapy, physiotherapy, health exercises.

Constant health monitoring combined with hygienic control significantly decreases the incidence of occupational diseases.



## CONCLUSION

Occupational hygiene in textile enterprises is of great importance due to exposure to dust, noise, heat, chemicals, and ergonomic stressors. Modern ventilation systems, strict sanitation rules, safety engineering measures, ergonomic workplace improvements, and proper use of personal protective equipment form the foundation for healthier working conditions. A comprehensive approach helps preserve worker health, prevent occupational diseases, and enhance the efficiency and sustainability of textile production.

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