

DESIGN OF SPECIAL CLOTHES OF MINERS, TAKING INTO ACCOUNT ERGONOMIC CHARACTERISTICS.

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Annotation.

This article presents a study of the hygienic and operational characteristics of special clothing, taking into account the requirements of consumers. Factors of harmfulness of overalls of metallurgists. The article also provides information about the basic ergonomic requirements for design and the choice of design parameters of miners' overalls.

Key words: Mining metallurgy, miners, design, overalls, labor protection, occupational diseases.

As stated in gost EN 340-2012 paragraph 4.4.1 and 4.4.2 of the Gost standard of 2019 of the Republic of Uzbekistan, protective clothing should provide the maximum level of comfort of the user with the required level of protection, appropriate environmental conditions, level of physical activity and expected use time.

Standards for certain types of protective clothing must include ergonomics and comfort requirements, as well as methods of their control (e.g., technical inspection, organoleptic control or test socks).

Special clothing should not include:

- have hard, scratched or hard surfaces that can irritate the skin or injure the user, come out;
- violation of blood circulation;
- be very loose or heavy and limit user movements.

Protective clothing can be made from materials with low vapor permeability or high air permeability and various ventilation holes to ensure, if necessary, no discomfort and thermal stress. In such cases, the test methods and requirements for the above-mentioned requirements for a design with vapor permeability, air permeability of the material or ventilation holes must be specified in the appropriate standard for certain types of protective clothing.

1 test method is standardized internationally according to demand.

2 methods of repeated and standardized vapor permeability testing other than those specified in this international standard can be used to test the material.

The owner of a special dress must have the appropriate information provided by the manufacturer of protective clothing that experiences serious physical stress, such as movement restrictions due to the need to comply with the rules of thermal stress or its use, such as special recommendations or warnings.

The information provided by the manufacturer should include the time of continuous use of a special protective clothing.

The main requirements for special clothing include protection against the influence of harmful and dangerous factors of production, ensuring labor safety, maintaining the normal functional state of a person and his ability to work.

In underground conditions, special clothes of miners are regularly exposed to friction on the surrounding stone, coal, support elements and parts of machines and mechanisms. In this regard, during the work of miners, a survey was conducted on the most characteristic actions.

Based on the studies carried out, the following characteristic main actions were identified:

- forward tilt of the body; handshake - 50%;
- lateral flexion of body 33%
- the position in which the hands are stretched up, forward, backward - 55%;
- bending of the body to the waist-74%;
- knee movement-40%.

Basically, the work of miners was associated with the movement of the lumbar part of the body, which was 73%. The most common occupational disease is radiculitis.

Miners can be seen from the questionnaire that the current workwear is not very satisfying. Most were protested against the materials produced. The main requirements for work clothes of a new design are as follows::

- increased strength of materials-26%;
- quality of reflective strips on clothes-22%;
- sewing quality when connecting clothing parts - 22%;
- additional parts for tools-5%;
- use of modern materials-30%;
- stylish design of general work clothes-87%.

But meeting all the requirements at a quick opportunity can be a bit of a hassle. In this case, this problem can be solved by applying rational design and introducing new structural elements. The costume design should provide the appropriate auxiliary parts (pockets, loops, etc.) necessary for the placement of miner equipment, as well as convenient accessories for use.

The most convenient method for the construction of a male special dress construction within the methods of building a dress is given in the book "Men's clothing", which is based on the English method of Winifred Aldrich. A special method for trousers was chosen for which, having studied several constructive techniques, will apply the most optimal.

A comparative analysis of the dimensional characters used in the design of special clothes for Mining Metallurgical Workers was carried out on the basis of four main styles: SOTSHL;

VDMTI; Emko SEV; “Muller & Sohn”. The number of units of size used in the sewing of special clothes for Mining Metallurgical Workers was comparative estimated. In the development of special clothing constructions for Mining Metallurgical Workers - the method of using coefficients created from the fabric stretching plusness was chosen to determine the limits of size reduction allowed by the structural types of sarja fabrics. As a style of construction, a special style was chosen for the “Winifred Aldrich” and trousers.

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