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| ***Branch in Ust-Ilimsk*** |  | **APPROVED****Director for Occupational Health and Safety****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_S.V. Vinnik****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_, 2014** |

**REGULATION**

for use of respiratory protective equipment

**И OT 01-02-14**

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1 PURPOSE

 The purpose of this Regulation is to ensure fulfilment of the requirements of the management system of Branch of JSC Ilim Group in Ust-Ilimsk (hereinafter the Branch) on the basis of the Occupational Health and Safety management system. The Regulation establishes a single procedure for use of respiratory protective equipment by employees of the Branch.

# 2 SCOPE

This Regulation is mandatory for performance by managers and specialists of all structural divisions of the Branch and regional separate subdivisions (RSS) of JSC Ilim Group in Ust-Ilimsk.

# 3 REGULATORY REFERENCES

In the course of development of this Regulation, the following documents and regulatory references were used:

3.1 GOST R 12.4.189-99 “Occupational safety standards system. Respiratory protective equipment. Masks”

3.2 GOST R 12.4.190-99 “Occupational safety standards system. Respiratory protective equipment. Half masks and quarter masks manufactured from isolating materials”.

3.3 GOST R 12.4.193-99 “Occupational safety standards system. Respiratory protective equipment. Gas mask and combination filters. General specifications”.

# 4 TERMS AND DEFINITIONS. ABBREVIATIONS AND SYMBOLS

In addition to the terms and definitions, abbreviations and symbols included in the Glossary (***V: General programs and documents\ISM documents\Glossary***), this Regulations uses the following:

***Isolating RPE*** – respiratory protective equipment which isolates human respiratory organs from the environment, wherein breathable air is provided from clean area or from a breathing mixture source integrated in the RPE. They have systems for breathable air or oxygen supply from a non-contaminated source.

***Filtering RPE*** – respiratory protective equipment which purifies respiratory air from harmful substances using filters, adsorbents and absorbents

***RPE* –** respiratory protective equipment.

**5 GENERAL REQUIREMENTS**

5.1 Each employee engaged in work at gas hazardous sites, tasked with handling or transportation of hazardous chemical substances, should know which respiratory protective equipment to use in case of emerging hazard of hazardous substances emission into the working zone air, and know how to use them. Correct selection and use of RPE ensures reliable protection of human respiratory system from exposure to harmful substances.

* 1. When entering premises or buildings where gas hazardous manufacturing is located, always carry a gas mask to be protected against accidental release of harmful substances into the working zone air.

5.3 RPE shall be used when content of harmful substances (gas, vapor, aerosol) in the working zone air exceeds maximum allowable concentrations (MAC).

Depending on the condition of working environment air, RPE is used continuously (during the entire working shift) or intermittently.

5.4 Depending on the nature of harmful substances, their concentration in the working zone air

and extent of MAC excess, employees should be provided with suitably reliable RPE of a certain type and model.

RPE selection should be based on the following criteria:

* RPE operating principle and purpose;
* RPE configuration;
* Indicators of RPE protecting and functional properties;
* composition and quantity of harmful substances in the working zone air;
* RPE suitability to the user and context of manufacturing operations.

Violation of RPE use guidelines and its wrong selection based on the conditions of the working zone and environment (without consideration of harmful substances in the air, their concentration, dispersion, air temperature and humidity, presence of oxygen in the air etc.) can result in an accident and poisoning.

5.5 Certain physical properties of the user, such as high hairstyle, beard, or scars, can affect tightness of seal of RPE mask or half mask along the obturation line. As a result, suction of harmful substances into the mask can occur. Such user should be aware of the risk he is exposing his or her health to.

5.6 All RPE is intended for personal use only.

5.7 It is forbidden to take RPE off during work for such reasons as use of a phone, conversations, drinking, smoking, and other reasons, in working zones where concentration of toxic aerosols, vapors or gases exceeds MAC. It is also forbidden to take RPE off on the way from the workplace to the area non-contaminated by harmful substances.

5.8 Correct and timely use of RPE by employees at their workplaces is monitored by direct supervisors of the works.

Occupational Health and Safety specialists perform periodic control of RPE correct use, storage and conditions.

5.9 Responsibility for timely availability and correct use of RPE everywhere it is needed, and for RPE condition, belongs to the manager of the structural division (manufacturing, production shop, area, laboratory etc.).

 5.10 Protective action of gas masks can be either filtering or isolating.

**6 PURPOSE, CONFIGURATION AND APPLICATION PROCEDURE**

**FOR INDUSTRIAL FILTERING GAS MASKS**

**6.1 Purpose, application**

6.1.1 Filtering RPE is used when the composition and concentration of harmful substances are known.

6.1.2 Filtering RPE can only be used if oxygen content in the working zone area is minimum 18% (by volume).

Filtering RPE cannot be used for work in hard-to-reach tight spaces, confined spaces like cisterns, wells, pipelines etc., if the concentration and composition of harmful substances are unknown.

6.1.3 Depending on the purpose, filtering RPE can be:

- dust protection (aerosol masks) for protection against aerosols (smoke, dust, fog);

- gas and dust protection (aerosol gas masks) for use in conditions of simultaneous presence of gas, vapor and aerosol of different substances in the working zone air;

- gas protection (gas masks) for protection against different harmful substances.

6.1.4 There is a variety of models of gas masks and aerosol gas masks intended for protection against certain groups of gases, see Table 1.

Table 1

|  |  |
| --- | --- |
| **Filtering gas mask models** | **Used for protection against:** |
| **А** – brown | organic gas, vapor with boiling point above 65 °С |
| **В** – grey | non-organic gas and vapor, excluding carbon monoxide |
| **Е** – yellow | sulfur dioxide and other acid gases and vapors |
| **К** – green | ammonia and its organic compounds |
| **Hg** – red, white | mercury vapors |
| **NO** – blue, white | nitrogen oxides |
| **Р** – white | aerosols (dust, fog, smoke) |

6.1.5 Filters are manufactured on the basis of GOST R 12.4.193 harmonized with European standards. Model of a gas mask filter or combination filter depends on the purpose (table 1) and time of protective action:

Gas mask filters ensure protection against gas and vapor. Combination filters ensure protection against gas, vapor and aerosol.

Depending on the time of protective action, А, В, Е and К gas mask filters are divided into classes (Х – filter class):

class 1 – low efficiency filters;

class 2 – medium efficiency filters;

class 3 – high efficiency filters.

Gas mask filters are designated as Gas Х, e.g. А2В3Е2 filter.

Combination filters are designated as Gas Х РХ, e.g. А2В2Е2К2Р3 filter.

6.1.6 Depending on the purpose, a filtering system can consist of one or several modules containing one or several absorbers, and an aerosol filter. In that case, the dust residue on the surface of the aerosol filter increases resistance to breathing.

6.1.7 Industrial filtering gas mask is intended for personal protection of respiratory system, eyes and face of a person against gas or vapor-gas harmful admixtures and aerosols in atmospheres with free oxygen volume fraction of at least 18% and total fraction of gas or vapor-gas admixtures 0.5 to 1.0%, at temperature from minus 40 °С to plus 40 °С in different climatic zones.

A person working in conditions of a lack of oxygen in a filtering gas mask, especially in case of prolonged tasks, will experience oxygen starvation, and can suffocate if not evacuated.

6.1.8 Use of filtering gas masks is obligatory in the following cases:

- in case of level measurement or sampling from compressed gas reservoirs;

- in case of level measurement or sampling from HIL tanks;

- in case of sampling of chemical harmful substances at the process units;

- in case of sampling of acids, alkali and other toxic substances from apparatus or pipelines;

- in case of drainage of settling water or condensate, oil, or other liquid products from pipelines, tanks and other chemical equipment;

- when performing connection of utilities to railway cisterns with liquefied gases (chorine, sulfur anhydride etc.) for their discharge into stationary containers (tanks);

- when performing once-off drainage and filling of low toxicity products;

- when disassembling toxic gas pipelines disconnected from operational networks (collectors);

* during short-term urgent works, e.g. in case of an emergency, or incidental release of gas;
* in case of evacuation of affected persons or self-evacuation.

**6.2 Configuration and selection**

6.2.1 A gas mask consists of a filter box or filter (hereinafter the filter) (absorbing and filtering element), facepiece (mask) with a goffered hose, and a bag.

Mask – (under GOST R 12.4.189) facepiece, which ensures supply of purified air or breathing mixture to the respiratory organs, and covers the face.

The filter is intended for purification of air inhaled by a person from harmful admixtures. Depending on their purpose, filters can differ by composition of absorbers, color and labeling (see table 1).

6.2.2 On the filter’s lid there is a neck with a thread for connection to the facepiece of a gas mask. The filter’s bottom has a round opening for supply of respirable air which is sealed with a rubber plug. During storage the opening in the filter’s bottom is sealed with a rubber plug.

6.2.3 The facepiece of a gas mask consists of the following assemblies and parts: rubber helmet or visor, connecting goffered hose.

A helmet mask is manufactured from thin elastic rubber with integrated glass goggles in a metal frame. There are five sizes of helmet masks (0, 1, 2, 3, 4). The size is marked on the chin part of the mask.

The lower part of the helmet mask (visor) has an integrated valve unit which segregates the flows of inhaled and exhaled air. Helmet mask or visor can be equipped with a communication device.

6.2.4 The goffered hose connects the facepiece and the gas mask filter.

6.2.5 Gas mask bag is intended for storage and carrying of the gas mask. The bag has two compartments: one with inserted wooden blocks or an opening in the bottom is intended for the filter, and the other – for facepiece and goffered hose.

The bag closes with a flap and a button. A shoulder strap is used to carry the gas mask bag over the shoulder. The strap has a moving buckle which helps adjust the strap length. The bag has a cord to fix it on a belt.

An employee should use a thread to sew a carton tag to the back of the gas mask bag at the place of shoulder strap attachment. The tag size is the same as a match box (50х35 mm). The tag should specify the first and last name of the gas mask user, filter model and helmet mask size.

*Example* **I.I. Sidorov**

**Model: BKF** (for filter box) or А2В3Е3Р3 (for filter) etc.

**Size: 2** (for helmet mask) or С (for visor).

It is forbidden to attach the tag with a wire to avoid damaging the facepiece of the gas mask.

6.2.6 The size of a helmet mask can be determined by two head circumference measurements using a measuring tape. The first measurement is along the circumferential line passing through chin, cheeks and top of the head. The second measurement is the length of semi-circumference along the line joining ear holes across the forehead passing through brow ridges. Results of these measurements are added up.

6.2.7 Based on the measurement result, the size of the helmet mask is determined. The necessary reference data is provided in table 2.

Table 2

|  |  |
| --- | --- |
| **Sum of measurements** | **Helmet mask size** |
| Up to 93 | 0 |
| 93 to 95 | 1 |
| 95 to 99 | 2 |
| 99 to 103 | 3 |
| 103 and above | 4 |

Correctness of selection should be checked by a test fit.

A correctly selected mask does not cause pain in the process of work.

6.3 **Assembly, testing and packing**

6.3.1 Upon receipt of the gas mask, check whether it is complete and whether its components are functional:

* check completeness of the facepiece body (mask, lenses, inhale and exhale valve); connection hose, coupling nut and screw top, availability of a rubber ring in the coupling nut; surface of absorbing and filtering element for absence of piercing, penetration holes and corrosion;
* check condition of connections of absorbing and filtering elements by tightly screwing on the outer threaded neck of the filtering element into the inner thread of the absorbing element;
* check thread of the neck (it should have no indents), screw on the cap with a gasket again.

 If a gas mask is found to be damaged, replace it with another one, which is also subject to a check.

6.3.2 Prior to assembly of the gas mask, remove the cap from the filter box lid neck or from a filter, remove the rubber plug from the bottom opening.

6.3.3 Gas mask assembly procedure:

* wipe the facepiece from outside and inside with a clean cloth slightly wetted in water;
* blow through the inhaling and exhaling units, connection hose;
* remove the cap with a gasket from the filter neck, remove rubber plug or stopper from the filter bottom, put them in the gas mask bag;
* tightly screw on the threaded connection between the hose and the facepiece, and between the neck of the filtering and absorbing system and the coupling nut of the connection hose.

Treat inner side of the facepiece lenses with soap: apply several dashes to the glass, exhale on it and rub the soap in with a finger.

6.3.4 To check whether the assembly is correct, size of the gas mask, its good working condition and tightness of seal, put on the gas mask, close the opening in the filtering element bottom with a palm of your hand, and make 3-4 attempt to deeply inhale. If the air does not flow into the facepiece, it means that it is in good working condition and the gas mask is assembled correctly. If the air does flow into the facepiece, then the facepiece is not airproof and cannot be used. To find the fault in the seal of the gas mask, it should be checked part by part.

Connection of the gas mask parts should be tight. Lack of tightness can result in poisoning.

6.3.5 Put the assembled gas mask in a bag in the following sequence:

* insert the filter;
* put in the facepiece, its visor facing the rear part of the bag (or put in the helmet mask so that it covers the goggle lenses).

6.3.6 Wear the gas mask bag across the right shoulder, on your left side, its flap on the outer side.

**6.4 Working position of the gas mask**

6.4.1 Disengage the flap of the bag, take out the cord and attach the bag to the belt.

6.4.2 Take out the gas mask from the bag, put on the helmet mask (panoramic mask).

To quickly and correctly put on the helmet mask, insert fingers of both hands, all but the thumbs, inside the chin part and hold the edges of the facepiece from the outside with thumbs while putting on the helmet mask on your head, starting from the chin. Belts of the visor mask should be tightened so that the mask would not compress the face and would provide air tightness.

To remove the gas mask, hold the valve unit, pull away the helmet mask (visor mask) a little bit downwards and remove it with a forward motion of your hand.

**6.5 Use and storage requirements**

6.5.1 Expiry date (e.g. for DOT filters) is specified in the labeling on the filter body.

During storage of gas masks without use in excess of the specified expiry date, filters should be replaced. Expiry dates for filter models V, BKF, K, KD – 5 years (the box labeling shows their production month and date).

6.5.2 In case of even negligible smell of the harmful substance or foreign smell under the gas mask, the filter should be replaced. Immediately exit the gas-polluted zone and replace the filter with a new one.

Protect the gas mask filter body from impacts to avoid its damage, and from water ingress into the inner part of the filter.

6.5.3 Replacement of filters of all models is required in case of breathing difficulty due to its plugging with aerosol in the course of use, and in case of even minor signs of poisoning or foreign smell.

6.5.4 Use of the gas mask without facepiece is forbidden.

6.5.5 After use, wipe the gas mask dry with a clean cloth from the inside and dry it out unfolded.

A dirty mask should be disconnected from the filter, washed with soapy water and dried.

6.5.6 For storage of individual gas masks at the workplaces, provide a dedicated rack or cabinet with cells, specifying the last name of the gas mask user on each cell. The lower shelf of the rack should be at least 0.5 m from the floor. Prior to work, an employee takes out his or her gas mask from the cabinet, and after work puts the gas mask back in the cabinet for storage.

6.5.7 It is forbidden to store gas masks in the proximity of heating systems and devices, as well as in cabinets for protective clothing, tools, and the like. Store gas mask in between periods of use in a dry, clean, dust-free place on dedicated racks or in cabinets.

6.5.8 Rubber parts of the gas mask should be protected against sunlight to avoid their damage.

6.5.9 The direct supervisor should monitor careful treatment of gas masks by employees.

6.5.10 Gas masks received by the company should be stored at the central storehouse. The storehouse premises should be dry. When gas masks are stored in factory packaging, the crates should be stacked, the lower row should be placed on a wooden deck.

6.5.11 Spare filters to gas masks should be stored in factory packaging.

6.5.12 Storage of served-out and defective (unusable) filters at the workplace together with good boxes is not allowed. Unusable filters and gas mask are subject to destruction at a dedicated site for storage, disposal and destruction of industrial waste.

**7 PURPOSE, CONFIGURATION AND APPLICATION PROCEDURE**

**FOR ISOLATING GAS MASKS**

7.1 Isolating RPE are equipped with systems for breathable air or oxygen supply from a non-contaminated source.

7.2 Isolating RPE are used in case of insufficient oxygen content, and in case of unknown composition of harmful substances, or in order to ensure a higher degree of protection.

7.3 Isolating RPE include hose breathing apparatus and self-contained breathing apparatus:

- hose apparatus: self-priming (air supply from clean area through the hose is caused by breathing efforts of the person); forced supply of clean air by air blowers, fans or from a compressed air network after pretreatment;

- self-contained breathing apparatus (oxygen regenerative respirators, self-rescue breathing apparatus, aspirators with compressed air bottles) are used for emergency rescue and recovery works.

7.4 Isolating gas masks and breathing apparatus are used in conditions of low oxygen content (less than 18% by volume), and in high concentrations of harmful substances, when filtering RPE cannot provide reliable protection.

7.5 Isolating hose gas masks (PSh-1, PSh-2) and hose breathing apparatus (ShDA) completely isolate respiratory organs of a person from contaminated environment and therefore can be used at any concentrations of gas regardless of air composition.

7.6 There are two types of Isolating hose gas masks:

* self-priming (PSh-1),
* with forced air supply (PSh-2, ShDA and "Module–1").

Use of hose gas masks should meet the requirements of the Regulation for use of isolating hose gas masks PSh-1, PSh-2 and ShDA. (И OT 01-09).

7.7 PSh-1 gas masks are single-channel isolating breathing apparatus which supply air to the facepiece from clean area due to the breathing effort of the user. They consist of two facepieces, two goffered connection hoses, a 10 m rubber armored hose, a filtering element for purification of respirable air from dust, and cotton (lavsan, capron) gear.

7.8 PSh-2 gas masks are forced air supply single- or double-channel isolating breathing apparatus in which air is supplied to the facepiece through a hose by an air blower from the clean air area. In hose gas masks, continuous supply of clean air and overpressure in the system excludes suction of contaminated air from the outside and prevents fogging of the facepiece lenses. The gas masks include: an air blower, one or two 20 (40) m rubber armed hoses (two hoses for simultaneous work of two persons), one or two facepiece kits, goffered connection hoses, cotton (lavsan, capron) ammunition.

7.9 Hose gas masks are completed with facepieces: helmet masks, ShPM or visor masks PPM-88. Gear includes a harness with shoulder straps, and a signal rescue rope.

7.10 All works in hose gas masks require presence of a backup person who is keeping another hose gas mask ready. Failure to meet this requirement can result in death of a worker through poisoning due to late rescue.

7.11 Regardless of gas concentration and availability of oxygen in the air, use of hose gas masks is mandatory in the following circumstances:

- inspection or works inside tanks, vessels, traps, pillars, apparatuses, scrubbers, regenerators, autoclaves, etc. similar equipment;

- cleaning of sewerage and other wells, trenches, trays, sumps;

- repair of utilities and valves in any wells;

- process operations in water process wells and sumps;

- works in sewerage pumping stations in absence of exhaust and intake ventilation;

- accidents in production premises and other sites with release of a sufficient amount of gas or vapor, where use of hose gas masks is possible and there is a way to secure the hose end outside of the gas-polluted area.

7.12 Air isolating breathing apparatus are intended for protection of respiratory organs and eyesight of employees against toxic and smoke-filled gas environment during emergency rescue operations in temperature range from minus 40 оС to plus 60 оС.

7.13 Air isolating breathing apparatus require constant qualified care and are difficult to handle. They can only be used by duly trained personnel. Maintenance and repair of air isolating breathing apparatus is performed by the gas rescue station.

**8 PURPOSE, CONFIGURATION AND APPLICATION PROCEDURE FOR RESPIRATORS**

8.1 Aerosol (dust protection) respirators are used when it is impossible to prevent dust contamination through the design of the process equipment, and for short-term handling of dusty materials.

8.2 Aerosol respirators are half masks that cover nose and mouth. They can be valveless or valved. During works in adverse weather conditions at air temperature above +28 °С or below 0 °С, do not use valveless respirators ShB-1, Lepestok, Kama, manufactured by 3М (8101, 8710, 9913), and other models. In these conditions, use valved respirators U-2K, Astra-2, F-62Sh RP-K, Yulia, NEVA-VK, 9226, 8822, 9332 (produced by 3М) and other models.

8.3 Aerosol respirators cannot be used for protection against harmful gases.

8.4 Respirators for protection against gases:

- respirators 9926 by 3М are used at harmful substances concentration 5 MAC or less;

- respirators (half masks) 7500 by 3М are used at harmful substances concentration 10 MAC or less.

8.5 All respirators should be factory manufactured. Requirements concerning the types of respirators to be used in specific industrial conditions, procedure for application, storage and care, filter replacement periods are provided in the operating instructions of the respirators attached by the manufacturing plant.

Each time before use make sure that the respirator suits the required type of work and ensure its tight fit. The respirator should be used throughout the entire period spent in the contaminated atmosphere and be replaced when necessary.

8.6 For use and assessment of reliability of the respirator:

а) Remove it from its individual packaging, study the relevant data on its name, manufacturer, model, degree of protection, carefully check integrity.

b) Open the respirator (Series 9300), pre-shape the nose grip in form of nose bridge by bending it a little in the center.

c) Turn over the respirator to disengage the head harness, put it on starting from the chin, then pull the harness over the head, placing the lower rubber band under the ears and the upper rubber band on the back of the head. Make sure that the upper and lower panels are unfolded (for series 9300).

e) Use both hands to finally shape the nose grip by tightly adjusting the respirator in the nose area.

f) If the respirator has an exhaling valve, cover the respirator surface with both hands and sharply inhale. If the respirator is fitted correctly, it should compress a little bit.

g) Then test tightness of fit. If the respirator has no exhaling valve, cover the respirator surface with both hands and sharply exhale. If the respirator is fitted correctly, the space under the mask will be slightly positively pressurized. If it didn’t happen, adjust the respirator on your face and the nose grip, and repeat the test.

**Caution!** Wrong use of any respirator or failure to adhere to the requirements on the packaging and the attached instruction can result in a disease or a prolonged sick leave due to the contact with contaminated atmosphere.

**9 PURPOSE, CONFIGURATION AND APPLICATION PROCEDURE**

**FOR HALF MASKS AND FULL FACE MASKS**

9.1 3М half masks series 7500 (hereinafter the half masks), full face masks 3М series 6000 (hereinafter the masks) are intended for filtration of potentially hazardous gases, vapors and/or aerosols from respirable air at the following concentrations of contaminants: for a half mask – up to 10 MAC; for a mask – up to 200 MAC, in the atmosphere containing at least 18% oxygen.

9.2 Three sizes of half masks are available: 7501 – small; 7502 – medium; 7503 – large. Three sizes of full face masks are available: 6700 – small; 6800 – medium; 6900 – large.

9.3 Maximum service temperature +40 оС.

9.4 Half masks and masks are not allowed for protection of respiratory organs if:

* nature and type of contaminants are unknown;
* concentration of contaminants in the working zone air is unknown;
* the concentration level is an instant threat to life;
* the atmosphere contains less than 18% oxygen.

9.5 The employee should immediately leave the working zone if:

* any part of the system is damaged;
* a breathing difficulty has occurred, resistance to breathing has increased;
* dizziness or other discomfort occurs;
* there is a taste or odor of contaminants;
* respiratory organs are irritated.

9.6 Only well-shaved personnel is allowed to use half masks and masks. Facial hair reduces tightness of the facepiece fit.

9.7 It is forbidden to use half masks or masks for exit from the accident zone in case of gas or vapor leakage.

9.8 Prior to use of a half mask, make sure that:

* all facepiece parts are free of fissures, defects, dirt;
* inhale valves are free from fissures, defects, signs of wear, valve seats are free from dirt;
* head harness is undamaged and elastic;
* all gaskets are tightly fit.

9.9 Put the half mask on as follows:

1. adjust head harness to ensure comfortable fit;

b) apply the half mask to your mouth and nose, then pull the harness on top and back of your head;

c) use both hands to grasp the lower belts and fasten them on your neck;

d) adjust tightness of upper belts, pulling at their ends so that the half mask tightly and comfortably fits to the face;

e) tighten lower belts using regulators located from behind;

f) check tightness of half mask fit by putting a palm of your hand on the lid of the exhaling valve and slightly exhaling. If the half mask inflates a bit and there is no leak along the obturation line, then the fit is sufficiently tight. If it proves to be impossible to achieve tight fit of RPE, it is forbidden to enter the contaminated area.

9.10 **It is forbidden** to remove the facepiece and disconnect filters before exit from the contaminated area.

9.11 During work in conditions of low ambient temperature, make sure that excessive moisture does not accumulate and valves don’t freeze.

9.12 After end of work in the half mask:

 а) loosen the head harness by pulling the belts out of the buckles;

 b) unfasten the lower belts;

 c) carefully pull the half mask off your face, take it off by an upward motion of your hand.

9.13 After each use, clean the facepiece without cartridges, filters and prefilters with a tissue wetted in water with neutral detergent free of lanolin or other oils (water temperature shall not exceed 50 оС). For respirator disinfection use disinfecting solutions. Then wash in clean warm water and dry in non-contaminated environment.

 9.14 A half-mask should be written off and replaced in 3 (three) years after start of use or in 5 (five) years after manufacturing, whichever comes earlier. The manufacturing date is specified in a table on the facepiece back. Each point corresponds to a quarter of the year which is shown in the upper cell of each column.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 02 | 03 | 04 | 05 | 06 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Example

In this case, the date is Q1 2002. The head harness system and the filter holder have the manufacturing date specified on a special-purpose “wheel”, and the exhaling valve only shows the year of manufacturing.

10.14 Mask assembly and preparation to use (figures 1-5):

а) choose the best fitting size out of the three available;

b) before connecting the filter, make sure that the gaskets are in place;

c) when fixing the series 6000 cartridges for gas and vapor protection, place the mark on the cartridge on top of the small continuous ledge of the bayonet connector of the mask and align the cartridge and the connector;

d) when fixing the series 2000 filters, install the filter so that the indents on the filter match the ledges on the bayonet connector of the mask and align the cartridge and the connector. (Fig. А-B)

e) turn cartridge/filter clockwise until stop (1/4 turns). Repeat the procedure for the second cartridge/filter.

***Fig. А.***

Fig. B

***Fig. В.***

9.15 Put on the mask as follows:

а) fully loosen the four belts, than put the belts on the back of your head and pull the mask on your face (Fig. 1, 2);

b) pull the ends of all belts to adjust tightness of fit of the mask;

c) start this procedure from neck belts and progress to the head harness;

d) do not overtighten the head harness (Fig. 3);

Fig. 1 Fig. 2 Fig. 3

9.16 To check tightness of fit of the respirator, place the palm of your hand on the exhaling valve lid and slightly exhale. (Fig. 4) If the half mask inflates a bit and there is no leak along the obturation line, then the respirator fit is sufficiently tight. If a leak is detected, change RPE position and/or adjust tightness of belts up to complete elimination of the leak. Repeat inspection.

Fig. 4

9.17 If there is a detectable smell of gas/vapor during use of a respirator, it means that the service life of cartridges has expired and they should be replaced.

9.18 Aerosol filters should be replaced when breathing resistance increases.

9.20 After each use, clean the facepiece without cartridges, filters and prefilters with a tissue wetted in water with neutral detergent free of lanolin or other oils (water temperature shall not exceed 50 оС). For respirator disinfection use sodium hypochloride or other disinfecting solutions. Then wash in clean warm water and dry in non-contaminated environment.

9.21 Inhaling and exhaling valves and their seats should be replaced in minimum two years after first use or in 6 years from the manufacturing date, regardless of whether they had been replaced earlier. The inhaling valve directly impacts safety of use of the mask. Its manufacturing date can be established based on the valve labeling, as specified below. The manufacturing year is specified on the lid of the central adapter.

9.22 The mask body manufacturing date can be determined by a ring diagram inside the facepiece above the lens (Fig. 5). The year is specified as a number in a segment, quantity of dots corresponds to a quarter or month in the manufacturing year. Each dot of the outer part of the segment corresponds to either 1 quarter or 12 months of the year specified in the middle.

Fig. 5

9.23 Store half masks and masks in factory packaging in a dry and clean place protected from direct sunlight, sources of heat and vapors of gasoline and solvents. Storage air temperature is -10 to +50 оС, relative air humidity should not exceed 90%.

9.24 3М series 6000 filters are used in combination with half masks 3М Series 7500 and full face masks 3М series 6000. Besides, aerosol filters 3М series 5000 can be used in combination with 3М series 6000 filters for protection against gases and vapors.

9.25 Do not use filters for exit from the emergency area.

9.26 Storage time (best before) is specified on the filter and packaging.

9.27 Service life of the filter depends on the level of contamination, work intensity, and time in the contaminated atmosphere. The symptom of expired service life of the filter for protection against gases and vapors is odor or taste of the contaminant inside the facepiece. Aerosol filters should be replaced when breathing resistance increases significantly. Both filters should be replaced simultaneously.

3М filters for protection against gas and vapor ensure protection against one type or a group of types of harmful substances, and in combination with aerosol filters – against aerosols.

9.28 Filter types (АВЕ) correspond to table 1.

9.29 Gas mask filter protection class. According to GOST R 12.4.190, suction index along the obturation line, inhaling and exhaling valves and filter connection should not exceed 2%. According to GOST R 12.4.189, the same parameter should not exceed 0.05%. Thus, use of the same filter (e.g. АВЕ1) with a half mask and mask will produce a vast difference in protection levels (see table 4).

Table 4

|  |  |  |
| --- | --- | --- |
| **Gas mask filter class** | **Maximum concentration for use with 3М half masks** | **Maximum concentration for use with 3М full face masks** |
| 1 (АВЕ1) | 10 MAC | 200 MAC |

**10 RESPONSIBILITY**

The workers of the Branch and RSS in Ust-Ilimsk bear responsibility for non-fulfilment and/or undue fulfilment of the requirements of this Regulation.

# Head of the Health and Safety Department N.V. Serbina

Chief Engineer of Health and Safety Department E.N. Bubnova

Approved:

Head of the Service for Fire Safety and Emergency N.S. Sugakov

### Motivated opinion of the primary trade union organization of the Branch

### JSC Ilim Group in Ust-Ilimsk

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\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ G.I. Basova

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Head of the unit \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**DOCUMENT REVISION SHEET**

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| Number of the amendment  | Name, date, number of the administrative document | Pages with the amendments | List of the amended sections (sub-sections, paragraphs) |
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