



Dressing materials and ready dressings – are goods used in surgery and bandaging for drainage of a surgical site, for wound tamponade to stop bleeding and provide drainage, for applying bandages, and also for protection of wound and burnt surfaces from contamination and injuries.

Dressings are made of natural and synthetic materials – wood, cotton, cotton fabrics, cotton-viscose yarn, etc.

The following general requirements are showed to dressing materials:

- high absorbing capacity (hygroscopicity);
- capillarity;
- fixed limits for moisture content;
- inertness;
- ability to be sterilized (without loss of quality);
- elasticity;
- absence of irritating properties;
- should be soft, but not friable.

Assortment of dressing materials.

The main dressing materials are cotton wool, gauze and lignin.

Medical cotton wool – is dressing material of loosely interlacing cotton fibers. There are 2 kinds of cotton wool: hygroscopic (absorbent) and compress one.

Medical **compress cotton wool** is of cream color, it poorly absorbs water and used for warming compresses and for applying splints due to its low heat conductivity (thermal insulation properties) and high elasticity. By its physico-mechanical parameters compress cotton wool should conform the following requirements: moisture content – not more than 9 %, elasticity – not less than 72 %, loose density–not more than 21 kg/m³. Compress cotton wool is packed into parcels per 50, 100, 250 and 500 g each or into bales of 40 or 50 kg.

Medical absorbent cotton wool is used for bandaging. It should be free from fat, bleached, rinsed (to provide neutral pH), properly combed. Fibers should be connected with each other, but at the same time material should be able to stratify easily into parallel layers of any thickness.

By purpose absorbent cotton wool is divided into the following types: ophthalmic (purified), surgical and hygienic one. Ophthalmic and hygienic cotton wools are produced of cotton fiber, surgical one – of cotton fiber or mixture of the latter with viscose staple fiber (up to 30%).

By physico-mechanical and chemical parameters medical absorbent cotton wool should correspond to the requirements specified in table of the GOST 5556-81 (see above).

Absorbent cotton wool is produced sterile and non-sterile in form of sheets and rolls. The cotton is dispensed in 25, 50, 70, 100, 250 and 500 g and packed into parchment paper or film which edges are to be soldered. Term of sterility for cotton wool is not less than 5 years.



Medical gauze – is loose reticular fabric used for manufacturing of ready dressings. It is produced in two grades: *bleached* and *gray*. Each of these grades is manufactured in two kinds – *cotton* and *mixed* (cotton-viscose 70/30 or 50/50 fiber).

Cotton gauze becomes wetted in 10 sec. (sinking in water), and viscose containing gauze becomes wetted in 60 sec. Durability of a cotton gauze is approximately 25 % higher than of gauze containing viscose. The latter has higher moisture capacity, high ability to absorb tissue exudates, better blood adsorption but retains fewer quantities of drug substances than cotton gauze does. Capillarity of both types of gauze is high being not less than 10-12 cm / hour.

Gauze is manufactured in pieces and rolls. Gray gauze is produced 74-98,5 cm wide having length not less than 200 m in a piece and 5000 – 8000 m – in a roll. Bleached gauze used for manufacturing of bandages is produced 69 – 91,5 cm wide and not less than 100 m long in a piece and 800 – 1300 m long in a roll. It is allowed to produce pieces of gauze less than 10 m.

Gauze is tested for absorbing capacity (wettability), capillarity and pH of its aqueous extracts.

Appearance of gauze should be free from two groups of defects:

- defects of the 1-st group – holes in a gauze sheet more than 5 cm large, oily and dirty stains, tightened edges more than 1 m by length of a fabric;
- defects of the 2-nd group – loose picks of more than three threads, more than 1,5 cm fringe on one side and more than 2 cm fringe on another side, holes in a gauze sheet not more than 5 cm large.

Gray gauze should be free from marks or stains of dyes that cannot be removed during bleaching.

Defects of appearance are determined by inspecting of gauze in reflected or natural light on drying drums.

Packing. Gauze is put in folded pieces or rolled onto rollers accurately without skews and loosening of gauze edges.

Pieces of bleached gauze are put in two folds. 2 or 3 pieces are packed together and tied with twine or band. Packs are wrapped with a paper and tied with twine, then stacked in bales and packed into fabrics or nonwoven cloth.

It's allowed to pack gauze into polyethylene film.

Lignin is obtained mainly from coniferous wood by mechanical and chemical processing. Medical lignin is produced as thin corrugated sheets of loose paper. It is manufactured in two grades: A – for dressing material and B – for packing of drugs, vaccines, bacterial preparations and medical instruments.

Lignin has very high hygroscopicity (1 g of A-lignin absorbs up to 12 g of water in 5 minutes) and high capillarity (85 mm in 30 minutes). However it has poor elasticity, can be easily torn, if wetted it breaks up on separate pieces. Moisture content in lignin should be 6 ± 2 %. Dirty spots, staining substances and



noncorrugated sites are not allowed.

Lignin is produced as separate sheets 60-80 cm wide and 1,5-2 m long. It is stacked in packs 5 kg each causing compressing of lignin, then it is wrapped with a brown paper and placed into boxes. Each pack is tied with a twine. Lignin is sterilized in autoclaves at $(120\pm 2)^\circ\text{C}$ during 15 minutes. Should be stored in dry place.

Storage of dressing materials.

Dressing materials and ready dressings should be stored within dry aired premises in cases, boxes, on racks painted with light oil paint, and on pallets which should be kept clean. Cases for storage of dressing materials and ready dressings should be periodically cleaned with 0,2% solution of chloramine or chlorinated lime.

Sterile dressings (bandages, gauze napkins, cotton wool) are stored in original package. Their storage in opened initial package is forbidden.

Non-sterile dressings are stored packed in dense paper or in bales (bags) on racks or pallets. Thus it is necessary to provide stable temperature, to avoid dampness and presence of any mold.

Sterile materials should be stored in premises preventing sharp temperature changes. Shelf-life of sterile dressing materials is 5 years. During storage of sterile dressing material it's necessary to sort it by years of manufacturing because after 5-year storage the goods should be tested for sterility even if their packing is unbroken.

If package is broken or moistened a dressing material is considered non-sterile anyway.

Plaster bandages are stored in dry premises, protecting them from mechanical damages. Their warranty shelf-life is up to 5 years from manufacture date (depending on packing).