UDC 675.06:006.354 Group M11

USSR STATE SPECIFICATIONS

| | |
|---|---|
| Saddle Leather<br>Technical Specifications<br>OKP 86 1700<br>OKP 86 2700 | GOST 1904-61<br>This supersedes<br>GOST 1904-70<br>and is valid upto<br>01.01.1988 |

The present standard relates to leather used for making saddlery, equipment for personnel and horses, belts and other small items.

1. Main Parameters and Dimensions

1.1. Saddle leather must be processed out of the hides of cattle, horses and pigs.

1.2. Saddle leather is made without using the head portion of the animal. The hide from different animals must have the following minimum area in sq. decimetres:

150 - for cattle hide;

150 - for horse hide;

98 - for pig hide.

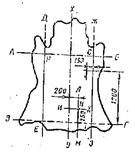
1.3. Saddle leather is classified into different varieties as in Table 1, depending on the type of leather and the purpose for which it is used, the type of raw material, configuration, thickness, colour and the method and nature of finish.

1.4. With respect to configuration, saddle leather is classified into shabrack*, fish and belly.

Shabrack (drg.1) is separated from the shoulder portion along the line AB. The line BC is drawn tangential to the valleys of the hind legs. The distance between these two lines is measured along the line CD. This distance should be 1750 mm for saddle leather types (П)Р and (К-С) К-S. It should be in the range of 1210 to 1400 mm

*Shabrack - Back of hide

for saddle leather of types L and K; shabrack is separated from left and right belly portions by the lines Д E and Ж З which join the crests of the front and hind legs.




Drg.1

The belly portions are separated along the lines Д E and Ж З (if front leg is present) or along the lines AP-PE and БС-СЗ (drg.4) (if there is no front leg).

1.4.1. While cutting off the belly portions, of not more than 10 mm from the cutting lines Д E and Ж З (see drg.1).

1.5. Belly portions are divided into two ranges:

from 150 to 200 mm incl. and

over 200 mm.

1.5.1. The width of the belly portion is determined along a straight line, perpendicular to the direction of a line separating the belly portion Д E or Ж З and passing through the reference point H used for determining the thickness of the hide at the belly portion (see drg.4).

1.6. Hides are classified into two varieties as below with respect to the method of tanning:

-vegetable tanning in combination with the main chromic salts and synthetic tanning substances - (Р Х С) RKhS;

-chrome tanning in combination with synthetic tanning agents (XC) KhS.

1.7. The reference point H is determined on the right side of the whole hide, shabrack or fish on the intersection of the line LM, 200 mm away from the spinal chord line XY, with the line И K located at a distance of 250 mm from the line BГ which is tangential to the valley of the hind legs (see drg.1).

In the case of horse hide, the point H is determined on the right side, at the intersection of the line Л M which is 250 mm away from the spinal chord line XY, with the line И K which is located at a distance of 50 mm from the line ЗГ, tangential to the rear end ØЦЧ at the point Ц (drg.2).

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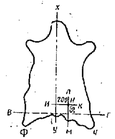
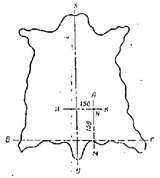


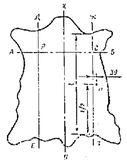

Drg.2

In the case of pigskins the point H is determined on the right side, at the intersection of line Л M, located 150 mm away from spinal chord line XY with the line И K located at a distance of 150 mm from the line BГ which is tangential to the valleys of the hind legs (drg.3)

In belly portions, the point H is determined at a distance of 30 mm from the midpoint of the line ДЗ or Ж3, separating the belly portion from the rest of the hide (see drg.4).



Drg.3



Drg.4

1.8. The minimum thickness of shabrack and fish portions is determined at the reference point O, situated on the right side at a distance of 1200 mm from the line BГ, which is tangential to the valleys of the hind legs and at a distance of 150 mm from the line ЖК separating the belly portion (see drg.1).

Table 1

| Type of leather | Purpose for which leather is used | Type of raw material | Leather configuration | Thickness, mm | | | Colour of leather | Nature of finish of leather |
|---|---|---|---|---|---|---|---|---|
| | | | | At ref. point H | At ref. point O, not less than | At any point in shabrack, not less than | | |
| 1. Saddle leather type K-S (K-C) | For side-covers and seats of saddles | Cattle hides | Shabrack and fish | 4.0 to 5.0 | 3.2 | 3.0 | Natural | with smooth natural face |
| | | Pigskin | Whole leather | | | | | |
| 2. Saddle leather type P (P) | For stirrup straps of saddles | Cattle hides | Shabrack and fish | Not less than 4.5 | 3.5 | 3.0 | -Do- | -Do- |
| 3. Saddle leather type L (L) | For parts of equipment for personnel | Cattle hides | Shabrack and fish | 2.5 to 3.0 | - | 2.0 | Natural | with natural face, smooth or trimmed |
| | | Pigskin | Whole leather | | - | 1.8 | | |
| | For belts and other small parts | Cattle hides | Belly portion | 1.5 to 2.2 | - | - | -Do- | -Do- |
| | | | | 2.2 to 3.0 | | | | |

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Table 1 Contd.

| Type of leather | Purpose for which leather is used | Type of raw material | Leather configuration | Thickness, mm | | | Colour of leather | Natural of finish of leather |
|---|---|---|---|---|---|---|---|---|
| | | | | At ref. point H | At ref. point O, not less than | At any point in shabrack, not less than | | |
| 4. Saddle leather type K | For harness for horses | Cattle hides | Shabrack and fish | 2.5 to 3.2 | - | 2.0 | Natural | with natural face, smooth and trimmed |
| 5. Russian saddle leather | For equipment for personnel and for horses | Hides of cattle, horses and pigs | Whole leather and half-leather | 2.2 to 2.8 | - | - | Natural or dyed | -Do- |
| | For equipment for personnel and for collars | -Do- | -Do- | 1.3 to 1.8 | - | - | -Do- | -Do- |
| | | -Do- | -Do- | 1.0 to 1.2 | - | - | -Do- | -Do- |

Note: 1. Details regarding dyeing and the nature of the finish to be given to the face of the leather are to be agreed upon with the customer.

2. Type L saddle leather may have a thickness of 2.0 to 3.0 mm at the reference point H.

1.9. Thickness of the hide at any point of the shabrack portion is determined at a distance of not less than 5 cm from the edge.

## 2. Technical Requirements

2.1. Saddle leather must be prepared in accordance with the requirements of the present standard and to master specimens, approved in accordance with GOST 15.007-81. The method used for preparing saddle leather must be one approved in the established manner.

2.1.1. Saddle leather must be evenly dyed, fully tanned and free from shrinkage. Its face must be clean. The flesh side of the leather must also be clean, well-finished and well-planed or ground.

2.1.2. Leather of the P, K-S, L and K varieties as also leather intended for belts and other small articles must be elastic and dense.

2.1.3. Russian saddle leather must be soft, plastic and wholesome to touch.

2.1.4. Leather of the highest quality category as to external appearance must conform to master specimens, approved by the state attestation commission.

2.1.5. Artistic and aesthetic parameters of saddle leather are evaluated in accordance with the requirements of Table 2.

Table 2

| Parameter | Evaluation limits, points, for leather of | |
|---|---|---|
| | highest quality category | first quality category |
| Elasticity | 16 to 15 | 16 to 14 |
| Finish | 24 to 23 | 24 to 18 |

Leather of the highest quality category must not be of less than

second sort and must have a rating of not less than 38 points.

Leather of the first quality category must have a rating of not less than 32 points.

2.2. Leather must conform to the parameters shown in Table 3 in respect of chemical composition and physical and mechanical properties.

2.3. Leather is divided into 4 grades depending on useful area:

First, second, and third grades - saddle leather of the types P, K-S, L and K;

First, second, third and fourth - Russian saddle leather.

2.4. Useful area is the area free from defects. The area may contain imperfections which are not considered defects for the particular kind of leather. Page 9

2.5. The following shortcomings are not considered to be defects for purposes of grading saddle leather.

a) Warble holes which are intergrown and scattered and do not collapse or break off during the shrinkage test.

b) Undercuts which are scattered and shallow (up to ½ the hide thickness).

c) Healed scars and cuts which are intergrown and which do not break off;

d) Shallow (up to ½ the hide thickness), well dressed scratches and colourless patches;

e) ... ... which is scarcely visible;

f) Intergrown insect bites.

2.5.1. Concentrated overgrown warble holes are defined as holes distributed at the rate of 20 nos. per square decimetre for K-S, K and

Table 3

| Parameter | Norms for leather | | |
|---|---|---|---|
| | Types P, K-S, L and K (whole hides, shabrack and fish) | Type L (belly portion) | Russian leather (whole hides or half hides) |
| 1. Moisture content by weight, % | 11.00 to 17.00 | 11.0 to 17.0 | 11.00 to 17.00 |
| 2. Proportion of substances which can be extracted with organic solvents, by weight, %, | 6.00 to 11.00 | 6.5 to 12.5 | 9.00 to 15.00 |
| 3. Proportion of substances which can be extracted with organic solvents (after dusting), %, not less than | - | - | 6.00 |
| 4. Proportion of substances that can be washed away with water, by weight, %, not more than | 7.00 | 7.0 | 5.00 |
| 5. Chromic oxide content by weight, % | | | |
| a) for (PXC) RKhS type leather | 0.90 to 1.80 | 0.7 to 1.7 | 0.80 to 1.60 |
| b) for (XC) KhS type leather | 0.90 to 2.00 | 1.0 to 1.8 | 1.00 to 1.80 |
| 6. Tanning index, % | | | |
| a) for (PXC) RKhS type leather | 42.00 to 59.00 | 45.0 to 65.0 | 30.00 to 50.00 |
| b) for (XC) KhS type leather | 37.00 to 55.00 | 37.0 to 55.0 | 25.00 to 45.00 |
| 7. Hygrothermic stability, %, not less than | 70.00 | 70.0 | 70.00 |
| 8. pH-value of potassium chloride extract | 4.00 to 5.50 | 4.0 to 5.5 | 4.00 to 5.50 |

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Table 3 Contd.

| Parameter | Norms for leather | | |
|---|---|---|---|
| | Types P, K-S, L and K (whole hides, snabrack and fish) | Type L (belly portion) | Russian leather (whole hides or half hides) |
| 9. Ultimate tensile strength of leather (average value from tests on longitudinal and transverse specimens), 10 MPa, not less than: | | | |
| a) for P type leather of thickness 4.5 to 5.5 mm thickness | 2.25 | - | - |
| b) for P type leather of thickness over 5.5 mm | 2.00 | - | - |
| c) for K-S, L, and K types of leather made from cattle hides | 2.00 | - | - |
| d) for K-S and L types of leather made from pigskin | 1.40 | - | - |
| e) for saddle leather from cattle and horse hides | - | - | 1.60 |
| f) for saddle leather from pigskin | - | - | 1.40 |
| 10. Ultimate tensile strength of face layer for Russian leather from cattle hides, 10 MPa, average for a batch, not less than | - | - | 1.75 |
| 11. Elongation at a pressure of 10 MPa (average value from tests on longitudinal and transverse specimens), %, for a batch | 10.0 to 17.0 | 15.0 to 30.0 | 15.0 to 30.0 |

Note: The norms for chemical composition, except for moisture content and pH-value of potassium chloride extract, given above are values calculated in terms of absolutely dry leather.

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L type and more than 6 nos. for P type saddle leather; otherwise they are considered to be scattered holes.

2.6. The following defects are not acceptable while grading the hides:

Untanned portions;

scratches;

shrinkage in the face;

stricking on the face exceeding 20% of the shabrack area;

at a distance of over 150 mm from the edge of the shabrack and covering more than 50% of the area of the belly portion;

unfinished flesh side;

sprinkling of dyestuff;

uneven dying;

2.7. All defects other than those listed in clauses 2.5 and 2.6 are measured in units of length or area.

Defects, measured in units of area, include defects which render a portion of the leather defective as also defects, located in a group and separated from one another by not more than 7 cm.

The area of defects is determined by inscribing them in the smallest rectangle into which they can all be accommodated.

The area of defects, inscribed in the rectangle, measured in square centimetres, if the smaller side of the rectangle is more than 2 cm.

If the smaller side of the rectangle is equal to or less than 2 cm. the defect is considered to be linear and is measured in centimetres.

If the sides of the rectangle go beyond the limits of the outline of the leather, the defects are inscribed within several rectangles, which do not go beyond the limits of the outline of the leather.

If there are two or more defects of different types in the same

portion of leather, the defect area is considered with reference to the defect with the largest area of defect.

2.8. GOST 3123-78 defines the characteristics of defects.

2.9. Leather is graded in accordance with Table 4 depending upon useful area.

Table 4

| Grade of leather | Useful area determining the grade of leather % |
|---|---|
| First | From 100 to 90 inclusive |
| Second | From 89.9 to 80 inclusive |
| Third | From 79.9 to 70 inclusive |

2.10. Russian saddle leather is graded as in GOST 337-74.

2.11. Saddle leather, being prepared against state orders, must meet the following additional requirements:

Thickness of saddle leather type L, at any point in the shabrack, must be not less than 2.3 mm;

Type L saddle leather is tanned with vegetable reagents in combination with the main chromic salts and synthetic tanning agents (RKhS);

Saddle leather with ground face is not acceptable.

## 3. Acceptance Rules

3.1. The rules of acceptance specified in GOST 938.0-75 are applicable, with the following additional stipulation;

Hygrothermic stability and proportion (by weight) of substances which can be extracted with organic solvents (after dusting) are periodic parameters and are determined by mutual consent.

These two parameters are to be determined for each batch in the case of state orders.

## 4. Methods of Testing

4.1. GOST 38.0-75 defines sampling procedure.

4.2. Moisture content by weight is determined in accordance with GOST 938.1-67.

4.3. Chromic oxide content by weight is determined in accordance with GOST 938.3-67.

4.4. Chemical composition is determined in accordance with GOST 938.4-70.

4.5. The proportion of substances extracted by organic solvents by weight is determined in accordance with GOST 938.5-68.

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4.6. Proportion of substances washable with water - by weight - is determined in accordance with GOST 938.6-68.

4.7. GOST 938.8-69 is to be follwed for determining pH-value of potasium chloride extract.

4.8. Ultimate tensile strength and elongation are determined as per GOST 938.11-69.

4.9. GOST 938.12-70 describes the procedure for preparing specimens for physical and mechanical tests.

4.10. Weight and linear dimensions are determined in accordance with GOST 938.14-70.

4.11. Specimens are to be conditioned as described in GOST 938.14-70.

4.12. Thickness of specimens and hides is determined as per GOST 938.15-70.

4.13. The face of hides is tested for shrinkage as per GOST 938.27-76 with following additional stipulations:

The test is carried out by bending the face of the hide over an are of 180° around rollers of the following diameters in millimetres:

20 for K-S type hides and

6 for P, K and L type hides.

4.14. Hygrothermic stability is determined as per GOST 938.28-77.

4.15. Colour stability is determined as per GOST 938.29-77.

4.16. Break of leather is tested in accordance with GOST 938.31-78 with the following additional stipulation;

The roller must have a diameter of 50 mm.

4.17. GOST 13817-68 specifies the method for measuring leather area in machines. Other measuring machines with the same accuracy may also be used.

4.18. Useful area of leather is found as follows:

The total area of all defects to be measured in units of area ($\sum Q_a$) is determined in square decimetres;

The total are of all linear defects ($\sum Q_l$) is determined in square decimetres; this is calculated using the formula

$$\sum Q_l = l \cdot 0.03,$$

where $l$ is the length of linear defects, cm and

0.03 is the factor for calulating defects measured in units of length and area.

The total area of all defects ($\sum Q$) as a percentage is calculated using the formula

$$\sum Q = \frac{\sum Q_a + \sum Q_l}{S} \cdot 100,$$

where S is the area of the leather, $dm^2$

Useful area of leather ($Q_{eff}$) as a percentage is calculated using the formula $Q_{eff} = 100 - \sum Q$

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## 5. Marking, Packing, Transport and Storage

5.1. GOST 1023-81 specifies marking, packing, transport and storage of saddle leather.