

MASTERCOPY

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GOST 9109-8'

TITLE : PRIMERS FL-02 K and FL-02 ZH

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USSR STATE STANDARD

Primers $\Phi A-03K$ and $\Phi A-03\text{Ж}$
(FL-0ZK and FL-0Z Zh)
Specifications

GOST 9109-81
This supersedes
GOST 9109-76

Reprinted April 1982. OKP 23 1243

Valid upto 01-01-1987

The present standard relates to $\Phi A-03K$ (FL-0ZK) and $\Phi A-03\text{Ж}$ (FL-0Z Zh) grade primers. These are suspensions of pigments and fillers in varnish based on phenolformaldehyde resins with the addition of vegetable oils and solvents.

Primer FL-0ZK is used on ferrous metal and wooden surfaces.

Primer FL-0Z Zh is used on ferrous and nonferrous metal and alloy surfaces as well as wooden surfaces.

Primer coat is resistant to temperature variation from minus 60 to plus 100°C.

1. TECHNICAL REQUIREMENTS

1.1. Primers FL-0ZK and FL-0Z Zh must be manufactured in conformity with the requirements of the present standard and to the formula and production regulations approved in the established manner.

1.2. Primer is applied on the surface by spraying or dipping or with a brush.

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FL-0ZK primer may also be applied on the surface by pouring it in the form of a jet.

1.3. Drying agent H ϕ -1 (NF-1) to GOST 1003-73 or Ж K-1 (ZhK-1) is added to primers FL-0ZK and FL-0Z Zh upto 1% of the primer weight before application.

The grade of drying agent to be used must be specified in the standard - technical documentation relating to painting of various items.

1.4. Primer is diluted down to the working viscosity using the solvent (in GOST 10214-78 or GOST 1928-79), xylene (GOST 9949-76) or GOST 9410-78 or a mixture of one of these solvents (thinners) in white spirit (GOST

3134-78) in the ratio of 1:1.

When the items are painted by spraying in an electrical field, the primer is diluted with diluent PЭ-4 (RE-4) (GOST 18187-72), primers used in such applications must have a viscosity not less than 100s by viscometer VZ-4 at $(20.0 \pm 0.5)^{\circ}\text{C}$.

The reference annexure contains the electrical characteristics of primers for application by spraying in an electrical field.

1.5. Primers must conform to the requirements and norms shown in Table 1.

2. TECHNICAL REQUIREMENTS

2.1. FL-OZK and FL-OZ Zh primers are inflammable and toxic substances because of the properties of the solvents and chromates forming part of their composition. Vapours of solvents forming part of the composition of primers exert an irritating influence on the mucous membranes of the eyes, the respiratory tract and integuments.

2.2. Maximum permissible concentration of solvent vapours and chromates in air in the working zone of production premises, flash point, spontaneous combustion temperatures, explosive limits and hazard class are listed in Table 2.

Table 2.

Substance	Maximum permissible concentration in air in the working zone of production premises, mg/m ³	Flash Point °C	Temperature of spontaneous combustion °C	Explosive limit in mixture with air % (By volume)	Hazard class
Xylene	50	24	494	1.0 to 6.0	3
Solvent	50	8 to 25	464 to 535	1.02	3
White spirit	300	83	270	1.4 to 6.0	4
Chromates	0.01	-	-	-	1

2.3. The requirements of fire safety and industrial sanitation as set out in GOST 12.3.005-75 must be observed in the production, use and testing of primers.

2.4. All operations, connected with the production, use and testing of primers must be carried out in shops equipped with plenum-exhaust ventilation and fire fighting aids.

2.5. Some of the precautions to be taken in the production, use and testing of primers are: hermetic sealing of all production equipment and local and general ventilation. Workers of the shops

Table 1.

PARAMETER	Norm for Primer		Method of testing
	FL-OZK OKP 23 1243 0109 01	FI-OZ Zh OKP 23 1243 0104 06	
1. Colour of film	Brown, tints are not standardised	Yellowish green; tints are not standardised	As per clause 4.3.
2. External appearance of film	After it has dried, the film must be uniform, even and of matt or glossy appearance.		As per clause 4.3.
3. ^{Viscosity} Conventional viscosity at (20.0 ± 0.5) °C by viscometer VZ-4, min.	40	40	As per GOST 8420-74.
4. Degree of dilution with thinner, %, not more than	25	20	As per clause 4.4.
5. Volatile substances content by weight, %	58 to 66	58 to 63	As per GOST 17537-72 section 2 and clause 4.5 of the present standard
6. Time taken for drying at (20 ± 2) °C hours, not more than	1	1	As per GOST 19007-73
Upto first degree	8	8	
Upto third degree			
at (105 ± 5) °C minutes, not more than,			
Upto fourth degree	35	35	
7. Degree of abrasion, microns, not more than	40	30	As per GOST 6589-74

Table 1 Contd.

	FL-OZK	FL-OZ Zh	
8. Hardness of film by pendulum instrument, conventional units, not less than: After drying at $(20 \pm 2)^{\circ}\text{C}$ After drying at $(105 \pm 5)^{\circ}\text{C}$	0.36 0.5	0.36 0.5	As per GOST 5233-67 and clause 4.6 of the present standard
9. Curvature in film, mm, not more than	1	1	As per GOST 6806-73 and clause 4.7 of the present standard
10. Strength of film on impact in Y-1a device, J (kgf.cm), not more than	5(50)	4(40)	As per GOST 4765-73
11. Film adhesion, points, not more than	1	1	As per GOST 15140-78, method 2
12. Resistance of film to the action of a 3% solution of sodium chloride at $(20 \pm 2)^{\circ}\text{C}$, hours, not less than	24	24	As per GOST 9.403-80, method 1 and clause 4.8 at the present standard
13. Resistance of film to the action of mineral oil at $(20 \pm 2)^{\circ}\text{C}$, hours, not less than	48	48	As per GOST 9.403-80, method 1 and clause 4.9 of the present standard
14. Ability of film to accept polish			As per clause 4.0

When polished, the film must form an even surface and must not stain the sand paper

Note: Formation of a sediment after storage is permissible provided, after thorough stirring and dilution as per item 4 of Table 1, the primer conforms to all the requirements of the present standard.

must be provided with special uniforms and individual protection aids as per GOST 12.4.011-75.

2.6. Primer coats, after they have dried, have no harmful action on the human organism.

3. ACCEPTANCE RULES

3.1. GOST 9980-80 - Section 1 defines acceptance rules.

3.2. Parameters against items 8, 10, 13 and 14 of Table 1 must be determined by the manufacturer periodically on every twentieth batch.

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4. METHODS OF TESTING

4.1. GOST 9980-80 - Section 2 defines sampling procedure.

4.2. PREPARATION FOR TESTING

4.2.1. Primers are thoroughly mixed and filtered through a sieve with 01 mesh to GOST 3584-73 or GOST 6613-73, before testing. Conventional viscosity, extent of dilution, volatile substance content and degree of abrasion are all determined on the undiluted primers.

Drying agent NF-1 or ZhK-1 (4% of primer by weight) is added and the primer is diluted with a 1:1 mixture of xylene and white spirit down to a viscosity of 18 to 20 seconds by viscometer VZ-4 at $(20.0 \pm 0.5)^{\circ}\text{C}$.

4.2.2. Plates are prepared as described in GOST 5832-76 - Section 3 for applying primer.

Curvature in paint film is determined on plates cut out of thin iron sheet (GOST 1127-72) to a size of 20 x 150 mm and a thickness of 0.25 to 0.28 mm.

Hardness of a film of paint is determined using glass slides conforming to GOST 683-75 and of size 90x120 mm and thickness 1.2 mm.

Plates made out of 08K η and 8 η C grade steel (GOST 16523-70) and out to a size of 70 x 150 mm with a thickness of 0.8 to 0.9 mm are used for determining the colour, external appearance, time taken for drying, strength of film to resist impact, adhesion, resistance to the action of a 3% solution of sodium chloride and mineral oil and ability of the film to take a high polish.

4.2.3. A single layer of primer is spray painted on the plate.

Both sides of the plate are painted with the primer for determining the resistance of the film to the action of a 3% solution of sodium chloride.

The primer is allowed to dry for 24 hours at $(20 \pm 2)^{\circ}\text{C}$ or for 35 minutes at $(105 \pm 5)^{\circ}\text{C}$. After high temperature drying as above, the primer is held at $(20 \pm 2)^{\circ}\text{C}$ for 3 hours before testing. In the event of difference of opinion in evaluating the quality of the primer, drying is done at $(105 \pm 5)^{\circ}\text{C}$.

The film must be 15 to 20 microns thick after it has dried.

4.3. Colour and external appearance of the dried film is determined visually against diffused artificial illumination.

4.4. DETERMINATION OF DEGREE OF DILUTION OF PRIMER WITH THINNER.

About 120 to 130 g of primer is weighed with error not exceeding 0.1g and dilute with a 1:1 mixture of xylene and white spirit down to a viscosity of 18 to 20 seconds by VZ-4 Viscometer at $(20.0 \pm 0.5)^{\circ}\text{C}$

Degree of dilution (X) as a percentage is calculated using the formula

$$X = \frac{m_1 \cdot 100}{m}$$

where m is the primer weight, g and m_1 is the ^{weight of} thinner used for diluting the primer, g.

- 4.5. Volatile substance content is determined at $(140 \pm 2)^{\circ}\text{C}$.
- 4.6. Hardness of film is determined after drying at $(20 \pm 2)^{\circ}\text{C}$ for 24 hours and at $(105 \pm 5)^{\circ}\text{C}$ for 35 minutes.
- 4.7. Curvature of film is determined using 4x magnification lenses.
- 4.8. Resistance of film to the action of a 3% solution of sodium chloride.

Blanching of the film is permissible. The sample is inspected with the naked eye.

4.9. RESISTANCE OF FILM TO THE ACTION OF MINERAL OIL

After the test, the plate is held in air at a temperature of $(20 \pm 2)^{\circ}\text{C}$ for 2 hours and the external appearance is inspected. The plate must retain its initial external appearance. A light discolouration and matt finish are permissible.

4.10. Ability of the painting to take a high polish

After the paint has dried on the plate prepared as in clause 4.2.3, it is polished with a polishing wheel of grain size 4 or 5 to GOST 6456-75 or GOST 10054-75.

5. PACKING, MARKING, TRANSPORT AND STORAGE

5.1. Packing, marking, transport and storage are done as per GOST 9980-80 - Sections 3 to 6.

6. MANUFACTURER'S GUARANTEE

6.1. The manufacturer guarantees conformity of the primers with the requirements of the present standard provided the transport and storage conditions defined in this standard are observed.

6.2. Guaranteed shelf life for primers is six months from the date of manufacture. After the lapse of the guaranteed shelf life the primer must be checked for conformity with the requirements of the present standard, before use.

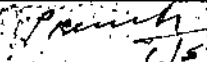
Annexure
for reference

Electrical characteristics of Primers

FI-OZK and FI-OZ Zh for spraying in electrical field.

Parameter	Norm
1. Volume resistivity at working viscosity, ohm.cm	$1 \cdot 10^7$ to $1 \cdot 10^8$
2. Dielectric permeability at working viscosity	6 to 10

LIST OF ALTERNATIVE SPECIFICATIONS ACCEPTABLE
IN LIEU OF GOST 9109-81.

SL. No.	ALTERNATIVE SPECIFICATION ACCEPTABLE	REFERENCE OF N OF A COMMITTEE MEETING	SIGNATURE OF OFFICER
1.	JSS: 3-47-13	No:(2200/CQA-ICV/N OF A, Dt. 25 NOV 2002. (REF DC (I) No. 009SS-ICV.)	 6/5/03 (P.MALLESWARA RAO) F/M (G)