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ELECTRICAL INSULATING VARNISH PE-943.(U)
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FOREIGN TECHNOLOGY DIVISION

ELECTRICAL INSULATING VARNISH PE-943

EDITED TRANSLATION

FTD-ID(RS)T-1003-79 20 July 1979

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ELECTRICAL INSULATING VARNISH PE-943

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U. S. BOARD ON GEOGRAPHIC NAMES TRANSLITERATION SYSTEM

Block	Italic	Transliteration	Block	Italic	Transliteration
А а	*А а*	A, a	Р р	*Р р*	R, r
Б б	*Б б*	B, b	С с	*С с*	S, s
В в	*В в*	V, v	Т т	*Т т*	T, t
Г г	*Г г*	G, g	У у	*У у*	U, u
Д д	*Д д*	D, d	Ф ф	*Ф ф*	F, f
Е е	*Е е*	Ye, ye; E, e*	Х х	*Х х*	Kh, kh
Ж ж	*Ж ж*	Zh, zh	Ц ц	*Ц ц*	Ts, ts
З з	*З з*	Z, z	Ч ч	*Ч ч*	Ch, ch
И и	*И и*	I, i	Ш ш	*Ш ш*	Sh, sh
Й й	*Й й*	Y, y	Щ щ	*Щ щ*	Shch, shch
К к	*К к*	K, k	Ъ ъ	*Ъ ъ*	"
Л л	*Л л*	L, l	Ы ы	*Ы ы*	Y, y
М м	*М м*	M, m	Ь ь	*Ь ь*	'
Н н	*Н н*	N, n	Э э	*Э э*	E, e
О о	*О о*	O, o	Ю ю	*Ю ю*	Yu, yu
П п	*П п*	P, p	Я я	*Я я*	Ya, ya

*ye initially, after vowels, and after ъ, ь; e elsewhere.
When written as ë in Russian, transliterate as yë or ë.

RUSSIAN AND ENGLISH TRIGONOMETRIC FUNCTIONS

Russian	English	Russian	English	Russian	English
sin	sin	sh	sinh	arc sh	sinh^{-1}
cos	cos	ch	cosh	arc ch	cosh^{-1}
tg	tan	th	tanh	arc th	tanh^{-1}
ctg	cot	cth	coth	arc cth	coth^{-1}
sec	sec	sch	sech	arc sch	sech^{-1}
cosec	csc	csch	csch	arc csch	csch^{-1}

Russian	English
rot	curl
lg	log

ELECTRICAL INSULATING VARNISH PE-943

Government Standard GOST 11240-65
Group L24
State Committee of Standards, Measures and Measuring Instruments of the USSR

Nonobservance of the standard is punishable by law

This standard is extended to the electrical insulating varnish PE-943 (formerly 124 VEI), which is a solution of polyethylene terephthalate resin in a mixture of solvents.

Varnish PE-943 is intended for the manufacture of enameled conductors of the PETV brand.

The use of the varnish for the enameling of conductors of defined dimensions and cross sections is established by the standards for conductors or technical specifications confirmed in established order.

1. Brands

1.1. Depending on the viscosity and dry residue, the varnish is manufactured in the following brands: PE-943A and PE-943B.

2. Technical Requirements

2.1. To manufacture the varnish PE -943, the following must be used: distilled glycerin per GOST 6824-54, dynamite or a higher grade;

ethylene glycol per GOST 10136-62, brands DP and DN:

dimethylene terephthalate, content of the basic substance is not less than 99.9%, iron not more than 0.0005%, and the ash content is not more than 0.08%;

tetrabutoxytitanium, content of titanium within 13.8-17% of iron not more than 0.01%, and of chlorine not more than 0.3%;

commercial coal tricresol per GOST 2264-54, brand A;

coal solvent-naptha (commercial) per GOST 1928-50, grades I and II.

2.2. The formula and industrial regulation of the varnish manufacture is confirmed by the State Committee on Chemistry attached to Gosplan USSR on agreement of the All-Union Order of Lenin Electrotechnical Institute im. V.I. Lenin.

2.3. The electrical insulating varnish PE-943 must conform in physicochemical indices to the requirements and standards indicated in the table.

Table

Name of indices	Standards for brands PE943A	PE943B
1. External form and color	Uniform transparent liquid from light brown to dark brown color without mechanical impurities	
2. Content of dry residue in % within limits of	34±2	42±2
3. Viscosity of the varnish according to viscosimeter VZ-1 (nozzle "5.4") at a temperature of 20°C in s, within limits of	35-90	360-420
4. Industrial test in enameling	Test should be held according to item 3.6 of this standard	

2.4 The ready production should be accepted by a technical inspector of the supplying manufacture. The supplier must guarantee the conformity of all the produced varnish to requirements of this standard.

2.5. The supplying manufacture is obligated to replace without charge the varnish during 6 months from its shipment date to the address of the user if during the indicated period the user

detects a nonconformity of the varnish to requirements of this standard.

Replacement of the varnish must be carried out under the condition of the observance of the rules of transporting and storage indicated in this standard and in the instruction of the supplying manufacture.

3. Methods of the Tests

3.1. For a control check by the user of the quality of production and also the conformity of the container, packing and marking to requirements of this standard, the rules of the sampling and methods of the tests indicated below must be used.

3.2. In the control check of the arrived batch of the electrical insulating varnish, the sample test is selected in conformity to requirements of GOST 9980-62, and the weight of the average sample must not be less than 6 kg.

In the sampling and conducting of the tests, it is necessary to take measures of precaution, considering the toxicity, explosion hazard, and fire hazard of the solvents entering into the composition of the varnish.

Taken for the batch is the quantity of varnish accompanied by one quality certificate. Here the supplier manufacture makes up the batch from varnish obtained in the solution of the polyethylene terephtalate resin prepared in one industrial cycle.

3.3. To determine the color and outer appearance, the varnish to be tested is poured into a test tube 10 mm in diameter from colorless glass, and it is examined in the passing light.

The presence of mechanical impurities is determined from the method discussed in GOST 2256-59.

3.4. To determine the content of the dry residue, about 1 g of varnish is placed into a watch glass 80 mm in diameter, weighed with a precision of up to 0.01 g and held in a thermostat at a temperature of 200±5°C for 45 minutes.

The content of the dry residue in the varnish in percent (X) is calculated from the formula:

$$X = \frac{(G_2 - G) \cdot 100}{G_1 - G},$$

where:

G is the weight of the watch glass in g;

G_1 - the weight of the watch glass with the tested varnish prior to drying in g;

G_2 - the weight of the watch glass with the varnish to be tested after drying in g.

The test was conducted on two specimens at the same time. As a result of the test we take arithmetic mean from two determinations, and here the divergence between results of the two parallel determinations must not exceed 1%.

3.5. The viscosity of the varnish is determined per GOST 8420-57 by the viscosimeter VZ-1 (nozzle "5.4").

3.6. Industrial test sample in the enameling. The dielectric and physicomechanical properties of the varnish are checked in the film of the varnish applied to round copper wire (per GOST 7311-60) 1.56 mm in diameter. The enameling (application of the varnish film) is conducted on an enamel bench stand of the OPM-2 type in eight operations at the rate of the pass at 4±0.5 m/min, at a furnace temperature of 370-410°C, and with the route of the calibers which provide a diametric thickness of the insulation of 0.06-0.11 mm.

The obtained enamel conducted must conform to requirements of the standard or technical conditions for conductors of the PETV brand confirmed in established order.

4. Packing, Marking, Transporting, and Storage

4.1. The packing, marking, transporting, and storage of the electrical insulating varnish PE-943 must be done in conformity with requirements of GOST 9980-60.

The overflow of the varnish must be carried out in zinc-plated or aluminum flasks and containers with hermetically sealed covers with rubber gaskets.

4.2. The varnish must be stored in a dry room in a tightly closed container at a temperature of 10° to 25°C. At cable plants, before being used, the varnish must be held at this temperature for not less than twenty-four hours.

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