Catalog

Electronic materials produced by NIIEM AO and CKB RM AO

2019

Electronic materials by Roselektronika AO

No	Products (Brand name)	General distinctive characteristics	Purpose	Specifi-cations	Analogs
		Organosilicon products			
Organosilicon compounds					
1	GK-ECh	Hydrogen-containing, electrical insulating, optically-transparent, with self-maintained adhesion. Single-component. Operating temperature range from -65 °C to +220 °C Electric strength not < 35 tg with frequency of 10^6 Hz not > $5 \cdot 10^{-4}$ ρ_v $1 \cdot 10^{17}$ Ohm·m Relative breaking elongation not < 75% Shore hardness not <20	Intended for cased and uncased filling of CEE modules and electrical instruments, high-voltage semi-conductor devices protection from different factors impact (high and low temperatures, temperature shocks, high humidity level, salt-spray, mold fungi, mechanical loads...) May be used for LED appliances and photovoltaic module production.	ShKFLO. 028.024	"Sylgard 184", Dow Corning Co.
2	GKN-ECh	Hydrogen-containing, electrical insulating, filled, single-component. Operating temperature range from -65 °C to +220 °C Electric strength not < 35 kW/mm ρ_v $1 \cdot 10^{17}$ Ohm·m tg with frequency of 10^6 Hz not >$5 \cdot 10^{-3}$ Breaking elongation not <75% Shore A hardness not < 22	Intended for cased and uncased filling of CEE modules and electrical instruments, high-voltage, semi-conductor and IC devices protection from different factors impact (high and low temperatures, temperature shocks, high humidity level, salt-spray, mold fungi, mechanical loads...)	ShKFLO. 028.024	"Sylgard 188", Dow Corning Co.
3	KEB	Electrical insulating, heatproof. single-component. Electrical insulating features are resistant to specific factors impact. Operating temperature range from -65 °C to +250 °C Electric strength not <30 kW/mm ρ_v $1 \cdot 10^{17}$ Ohm·m tg with frequency of 10^6 Hz not >$15 \cdot 10^{-3}$ Breaking elongation not <95%	Intended for protection of high-voltage semi-conductor devices from different factors impact (high and low temperatures, temperature shocks, high humidity level, salt-spray, mold fungi, mechanical loads...)	YUO. 028.106	"Sylgard 567", Dow Corning Co.

No	Products (Brand name)	General distinctive characteristics	Purpose	Specifi-cations	Analogs
		Shore A hardness not < 20 Inflammability: - burning time, C not >20 - char part length not >30			
4	KKP-2	Heatproof, flexible, passive to corrosion. Double-component. Operating temperature range from -60 °C to +200 °C Electric strength not < 30 kW/mm ρ_v $1 \cdot 10^{17}$ Ohm·m tg with frequency of 10^6 Hz not $<5 \cdot 10^{-3}$ Breaking elongation not <150% Shore A hardness not < 40 Heat conductivity not < 0.17 W/m·K	Intended for protection of high-voltage semi-conductor and IC devices from different factors impact (high and low temperatures, temperature shocks, high humidity level, salt-spray, mold fungi, mechanical loads...)	YUO. 028.111	"Sylgard 184", Dow Corning Co.
5	KEN-1C	Electrical insulating, flexible, low temperature cure. Electrically insulating features are resistant to different factors impact. Double-component. Operating temperature range from -60 °C to +200 °C Electric strength not <25 kW/mm ρ_v $3 \cdot 10^{16}$ Ohm·m	Intended for microwave switching diodes' crys-tals surface and bootstrap diodes protection from external factors (high and low tempera-tures, temperature shocks, high humidity level, salt-spray, mold fungi, mechanical loads...)	YUO. 028.055	"HIPEC 90-714", Dow Corning Co.
6	KEN-3S	Electrically insulating, thixotropic. Filled. Double-component. Operating temperature range from -60 to +200 °C. ρ_v not $<1 \cdot 10^{16}$ Ohm·m Electric strength not <27 kW/mm	Intended for high-voltage semi-conductor and IC devices protection from external factors im-pact (high and low temperatures, temperature shocks, high humidity level, salt-spray, mold fungi, mechanical loads...). May be used for photovoltaic modules production.	YUO. 028.086	"TSE-399", Toshiba Silicone Co.
7	KKT-1 KKT-2 KKT-3	Electrically insulating, thixotropic. Filled. Double-component. Operating temperature range	Intended for protection of high-voltage semi-conductor	YUO. 028.111	-

No	Products (Brand name)	General distinctive characteristics	Purpose	Specifi-cations	Analogs
		from -60 to +200 °C Electric strength not <25 kW/mm ρ_v <$5 \cdot 10^{16}$ Ohm·m tg with frequency of 10^6 Hz not <$3 \cdot 10^{-3}$ Heat conductivity not < 0,15 W/m·K			
8	KTE	Electrically insulating, heatproof. Maintainbale. Double-component. Operating temperature range from -80 to +300 °C Electric strength not <25 kW/mm ρ_v <$1 \cdot 10^{15}$ Ohm·m tg with frequency of 10^6 Hz not < $3 \cdot 10^{-3}$ Electric strength not < 30 kW/mm Tensile stress at break 2,5 ÷ 6 MPa Breaking elongation 150 ÷ 200%	Intended for encapsulation of electronic components with high exploitation characteristics.	6365-017-07615973-2014	
9	Elastech	Waterblocking, electrically insulating, high-tensile, highly elastic. Operating temperature range from -80 ^{0}C to +300 ^{0}C Tensile stress at break 1.5÷2.5 MPa Extension strain 130÷180% Electric strength 22÷25 kW/mm	Intended for cased and uncased filling of ferrite and permalloy core-operated high-voltage transformers, impedance coils, AC-DC converters, function boxes, CEE modules and electrical instruments, containing strain-sensing elements, made for surface-mounted and overside items capable of working in extreme conditions.	2513-023-07550073-05	Sylgard-170, Dow Corning Co.
10	KEN-2	Electrically insulating, offers high degree of purity, chemical resistance, high production effectiveness (long fluidity time at room temperature and fast cure). Able to cure in an enclosed volume. Double-component. Operating temperature range from -60 °C to +200 °C Electric strength not <25 kW/mm Breaking elongation not <80%	Intended for electronic and electrotechnical devices power module devices protection, electrical connectors and sensors cavities molding.	YUO. 028.055	“Sylgan N-622”, SWS Silicones Co.

No	Products (Brand name)	General distinctive characteristics	Purpose	Specifi-cations	Analogs
11	KET-3N	Heat stable, electrically insulating, filled. Pasty. Double-component. Operating temperature range from -100 ^{0}C to +250 °C Electric strength not <15 kW/mm Internal mechanical stress rate at a temperature -60 °C not >1 MPa Ultimate shear stress using a sublayer KA-1 in “quartz-quartz” pair not <4 MPa	Intended for high-intensity radiation devices of light encapsulation and other ET devices.	YUO. 028.071	“Phodorsil RTV-1502”, Phône-Poulenc Co.
12	KEN-9T	Flexible, heat-conducting. Double-component. Operating temperature range from -70 °C to +200 °C Electric strength not <25 kW/mm ρ_v $1\cdot10^{16}$ Ohm·m tg with frequency of 10^6 Hz not > $5\cdot10^{-3}$ Breaking elongation not <70% Tensile stress at break 1.3 MPa Heat conductivity 1,2 W/m·K	Intended for IC, microwave and special electronic devices encapsulation. May be used for LED appliances and photovoltaic module production.	6365-024-07615973-2017	-
13	KORZ-15S	Electrical insulating, flexible. Double-component. Operating temperature range from -60 °C to +200 °C Tensile stress at break not < 8 MPa Breaking elongation not < 60% Electric strength not <15 kW/mm ρ_v $1\cdot10^{16}$ Ohm·m Self-burning time not > 30 s	Intended for encapsulation of radio-electronic and electro-technical areas of industry.	6365-031-07615973-2019	-
14	Elastech NG	Nonflammable, waterblocking, electrically insulating, high-tensile, highly elastic.	Intended for cased and uncased filling of ferrite and permalloy core-operated high-voltage transformers, impedance coils, AC-DC converters, function boxes, fireproof constructed CEE modules.	RVIC 460008.066	-

No	Products (Brand name)	General distinctive characteristics	Purpose	Specifi-cations	Analogs
15	Elastin	Waterblocking, electrically insulating, high-tensile, highly elastic, resistant to tropical humidity and salt-spray impact. Operating temperature range from -80 ^{0}C to +300 ^{0}C Tensile stress at break 0.8÷1.0 MPa Extension strain 80÷180 % Electric strength 15 kW/mm Able to cure in an enclosed volume in standard climatic environment.	Intended for impregnation and filling of low and high voltage multi layered wire wrap devic-es with wire diameter 8-10 mKm, operated on permalloy and ferrite cores. Encapsulation of devices, working in extreme conditions.	2513-024-0755007 3-05	-
Organosilicon heat-conducting pastes					
16	Paste “Silker”	Available in three brands: Silker-1 with a thermal conductivity of not < 0,8 W/m·K Silker-2 with a thermal conductivity of not < 1,0 W/m·K Silker-3 with a thermal conductivity of not < 1,2 W/m·K Operating temperature range from -60 ^{0}C to +200 ^{0}C	Intended for creation of the intermediate envi-ronment that provides effective thermal contact between the contacting surfaces in apparatus and equipment for various purposes.	6365-027-0761597 3-2018	-
Organosilicon substrates					
17	KA, KA-1	Offers high degree of purity. Ultimate shear strength in “quartz-quartz” pair not < 4 MPa	Can be used as stabilizer and adhesive during encapsulation of semiconductors and other de-vices with organosilicon compounds.	YUO. 029.066	-
Organosilicon lacquers, coatings, enamels					
18	EKT Lacquer	Electrically insulating, heatproof. Organosilicon block copolymers based. Electrotechnical and physicomechanical properties of lacquer film retain the refer-ence values after different factors impact.	Intended for protection of active elements sur-face and radio-frequency devices plates, radio-frequency ICs after climate exposure impact assembling.	YUO. 028.122	R-4-3117, Dow Corning Co.

No	Products (Brand name)	General distinctive characteristics	Purpose	Specifi-cations	Analogs
		Operating temperature range: from -70 °C to +250 °C, +400 °C (short-term) Electric strength not <40kW/mm ρ_v $1 \cdot 10^{17}$ Ohm·m tg with frequency of 10^6 Hz not $>3 \cdot 10^{-3}$			
19	EKP Lacquer	Electrically insulating, anti freezing. Electrotechnical and physicomechanical properties of hardened lacquer film retain the reference values after different factors impact. Operating temperature range from -70 to +250 °C Electric strength not < 30 kW/mm ρ_v $1 \cdot 10^{17}$ Ohm·m tg with frequency of 10^6 Hz not $>3 \cdot 10^{-3}$ Extension strain not < 120% Tensile strength not <2,5 MPa	Intended to protect microcircuit elements, HIC (Hybrid Integrated Circuit) UHF, resistors, transistors and other electronic products.	ShKFLO. 028.048	-
20	Coating Universal	High-tensile, highly elastic, electrically insulating, moisture-proof, anti freezing. Tensile stress at break 4÷6 MPa Extension strain 150-120% Electric strength 35 kW/mm 1 layer depth 10÷12 μm	Intended for surface protection of electronic products with space-wired interconnections and printed wiring on printed circuit board, impregnation of fibrous and poromeric materials, CEE moisture protection, including antennas, waveguides, radomes and others.	2229-021-07550073-04	-
21	Coating Universal-2	High-tensile, highly elastic,electrically insulating, moisture-proof, anti freezing. One layer depth 15÷25 μm Dielectric capacity 3,0 Dielectric loss-angle tangent 0,001 Tensile stress at break 3-7 MPa Extension strain 200÷400 % Can be repaired in extreme field conditions	Intended for CEE materials moisture protection, including printed circuit board, working in extreme conditions.	RVIC 460008 065	-

No	Products (Brand name)	General distinctive characteristics	Purpose	Specifi-cations	Analogs
22	Enamel TMK	Flexible. Double-component. Maintainbale. Operating temperature range from -80 to +300 °C ρ_v $1 \cdot 10^{17}$ Ohm·m tg with frequency of 1 GHz not $<3 \cdot 10^{-2}$ Breaking elongation 150 ÷ 200% Tensile stress at break 2,5 ÷ 6 MPa	Intended to obtain protective elastic coatings of electronic components.	2321-002-0761597 3-2014	
Organosilicon adhesives					
23	GKCh-M	Hydrogen-containing. Optically-transparent. Single-component. Operating temperature range from -60 °C to +220 °C Ultimate shear stress not <2,5 MPa Light transmission at the wave length 400 Nm 93÷95 %	Glass gluing (silicate, matte lacquer coated plexiglass) with chrome, plastic surface, additional fixation on printed circuit board, lids, connectors, optical elements and cable outlets encapsulation. Used as protection from different factors (salt-spray, vibration, bumps). May be used for photovoltaic modules production.	YUO. 028.070	-

Epoxy products

Compounds, adhesive-compounds epoxy electrically insulating (double component)					
24	NK-1	Supports devices work stability in rapid temperature change conditions, bumps, vibration, provides good adhesion to metal, ceramics, glass textolite, polyamide, PVC, ABS resin and so on. Operating temperature range from -60 °C to +125 °C ρ_v $1 \cdot 10^{17}$ Ohm·m The sealant can be applied in any way: manually, with a gun or a dispenser.	The sealant is intended for cased and uncased protection from semiconductor devices and IC devices.	ShKFLO. 208.043	-
25	OPN-1N	Compound-adhesive. Filled. Supports devices work stability in rapid temperature change conditions, bumps, vibration.	The compound is intended to encapsulate semiconductor and IC devices.	6365-010-0761597	-

No	Products (Brand name)	General distinctive characteristics	Purpose	Specifi-cations	Analogs
		Operating temperature range from -60 °C to +125 °C ρ_v not $< 1 \cdot 10^{16}$ Ohm·m tg with frequency of 1 GHz not $> 3 \cdot 10^{-2}$ The compound can be applied manually or with a dispenser, precast beds allow to fill compound's space or form a device case.		3-2010	
26	TK-0	Adhesives-compounds. Glues different materials together: metals, ceramics, plastics and so on. Operating temperature range from -60 °C to +125 °C ρ_v $1 \cdot 10^{14}$ Ohm·m Ultimate shear strength in "Al-Al" pair not < 6 MPa Applied by gluing, filling, coating.	Intended for assembling and encapsulation of radio-technical and electronic apparatus.	ShKFLO. 028.053	-
Compounds, adhesives-compounds epoxy heat-conductive (double-component)					
27	TKK-2	Thermally conductive adhsives-compounds. Initial heat conductivity rating not < 1,6 W/m·K Ultimate shear strength in "Al–Al", "Ni–Ni" pairs not < 6 MPa ρ_v $1 \cdot 10^{16}$ Ohm·m The compound can be applied by dip coating or with a brush, or using the screen-printing technique.	Intended for radio-technical and electronic apparatus mounting, including metals, ceramics and plastics. Intended for coating and filling.	ShKFLO. 028.051	"Polytec H 61 ZV", Epoxy Technology Co.
28	TK-30	Heat conductive adhesives-compounds. Glues different materials together: metals, ceramics, plastics and so on. Operating temperature range from -60 °C to +125 °C Heat conductivity rating not < 0,8 W/m·K	Intended for assembling and encapsulation of radiotechnical and electronic apparatus by gluing, filling and coating.	ShKFLO. 028.053	-

No	Products (Brand name)	General distinctive characteristics	Purpose	Specifi-cations	Analogs
		ρ_v $1 \cdot 10^{12}$ Ohm·m Ultimate shear strength in "Al-Al" pair not < 8 MPa			
29	KZhT-2	Heat conductive adhesives- compounds. Operating temperature range from -50 °C to +155 °C Heat conductivity coefficient not < 0,9 W/m·K ρ_v $1 \cdot 10^{15}$ Ohm·m Adhesive can be applied manually or automatically (with a metallic marker over a mask).	It is intended for gluing and encapsulation of electronic products, high-powered LIC die attachment directly onto a heat sink with insulation provided.	YUO. 028.112	-
Compounds epoxy self-extinguishing					
30	EKS	Self-extinguishing. High electrically insulating characteristics. Electric strength 30-35 kW/mm Processable (low viscosity, pot life 16÷20 hours). For computer-aid manufactures.	It is intended for impregnation and encapsulation of fireproof constructed CEE devices.	2257-001-07550073-01	XN-1065, XN-1066, «Sanyo», Japan
31	EKS-T	Heat conductive, self-extinguishing. Heat conductivity rating, W/m·K: 0,8÷0,83in standard climatic environment 0,77÷0,71 at +120 ^{0}C 0,77÷0,74 at -50 ^{0}C Electrically insulating. For computer-aid manufactures	Intended for heat sink requiring CEE devices, printed circuit boards, electronic components filling.	RVIC 460008.063	-
32	EKS-B	Self-extinguishing, electrically insulating, processing in HF and UHF. Dielectric capacity: 4,9÷5,1 at a frequency of 3,4-6,2 GHz; 5,4÷5,6 at a frequency of 3,4-6,2 GHz;	For CEE devices (waveguides, antennas, radomes and so on).	RVIC 460008.061	-
33	EDBO	Self-extinguishing, electrically insulating. Single-component.	Used for CEE and semiconductor devices encapsulation; usage in capacitors, transformers	YUO. 028.094	"Stycast 3051",

No	Products (Brand name)	General distinctive characteristics	Purpose	Specifi-cations	Analogs
		Stands the impact (95±3) % of isopsychric humidity at a temperature of (40±2)°C for 56 days, salt-spray for 10 days, spirit-gasoline mix for 24 hours. Electric strength not <25 kW/mm ρ_v $1 \cdot 10^{17}$ Ohm·m tg with frequency of 10^6 Hz not >$2.5 \cdot 10^{-2}$ Flexural static bending stress not<60 MPa	and chip transistors production.		Emerson & Cuming Co.
34	PUSK	Fitted impregnated self-extinguishing compound. Double-component. Operating temperature range from -60 °C to +100 °C Electric strength 33 kW/mm ρ_v $1 \cdot 10^{17}$ Ohm·m Flexural breaking stress not <60 MPa Self-burning time not > 4s	Intended for encapsulation of transformers, other electrical products.		
35	PZVK-90	Fitted impregnated self-extinguishing compound. Double-component. Operating temperature range from -60 °C to +125 °C Electric strength 25 kW/mm ρ_v $1 \cdot 10^{17}$ Ohm·m Flexural breaking stress not <60 MPa Self-burning time not > 2 s	CEE and semiconductor devices encapsulation. Used in transformers production and so on.	ShKFLO. 028.052	"Araldite XN1065/xn1066", Ciba-Geigy Co.
36	EZPS	Fitted impregnated self-extinguishing compound. Three-component. Operating temperature range from -60 °C to +100 °C Electric strength not <25 kW/mm ρ_v $1 \cdot 10^{17}$ Ohm·m	Intended for sealing elements and systems of power electronics, for various industries		

No	Products (Brand name)	General distinctive characteristics	Purpose	Specifi-cations	Analogs
		tg with frequency of 1 GHz not >$4.0 \cdot 10^{-2}$ Flexural breaking stress not <60 MPa Heat conductivity rating 0,28 W/m·K Inflammability: -flame resistance ГОСТ 221207-75 2 category - char part length not >30 mm			
37	EKN	Fitted impregnated self-extinguishing compound. Double-component. Operating temperature range from -60 °C to +80 °C Electric strength not <30 W/mm ρ_v $1 \cdot 10^{16}$ Ohm·m tg with frequency of 10^6 Hz not >$4.0 \cdot 10^{-2}$ Inflammability: -flame resistance ГОСТ 221207-75 2 category	General purpose compound.	YUO. 028.075	"Stycast 2651", Emerson & Cuming Co.
Compounds, adhesives-compounds epoxy optically-transparent					
38	OPN-1	Optically-transparent compound adhesive. Provides good moisture protection, high optical properties of devices, their work stability in rapid temperature change conditions, bumps, vibration. Refraction indice, n^{20} not < 1,54 Light transmission of devices with 1mm width: at the wavelength 550÷600nm not <70 % at the wavelength 700÷600nm not <80 % ρ_v $1 \cdot 10^{16}$ Ohm·m	It is intended for gluing and encapsulation of optoelectronic devices used in semiconductor engineering.	6365-010-07615973-2010	Epo-Tek 310, Epoxy Technology, Inc.
39	OPN-1T	Provides good moisture protection, high optical properties of devices, their work	For gluing metals, ceramics, porcelain, faience ware, wood, marble, construction materials,	6365-010-	"Stycast 1090",

No	Products (Brand name)	General distinctive characteristics	Purpose	Specifi-cations	Analogs
		stability in rapid temperature change conditions, bumps, vibration. Operating temperature range from -60 °C to +125 °C Refraction indice, n^{20} not < 1,54 ρ_v $1 \cdot 10^{16}$ Ohm·m Ultimate shear strength in "Al-Al" pair not < 3 MPa	glass, radio electronic elements and so on.	0761597 3-2010	Emerson & Cuming Co.
Adhesives, Pastes epoxy electrically conductive					
40	TOK-1	For computer-aid manufactures. Silver-bearing, two-component. ρ_v $(1.5\text{-}2.0) \cdot 10^{-6}$ Ohm·m Thermal conductivity rating 4.0-4.5W/m·K Ultimate shear strength with "steel-steel" pair not < 6 MPa	Printed circuit board, IC and piezoelectric devices assembly.	ShKFLO. 028.002	EPO-TEK H31, Epoxy Technology Co.; SRM-1033, Sumitomo Bakelitt Co.
41	TOK-2	For computer-aid manufactures. Single-component ρ_v $(1.5\text{-}2.0) \cdot 10^{-6}$ Ohm·m Thermal conductivity rating 2.0-2.5W/m·K Ultimate shear strength in "steel-steel" pair not < 6 MPa	Printed circuit board and IC devices assembly, piezoelectric devices installation.	ShKFLO. 028.002	EPO-TEK H31, Epoxy Technology Co.; SRM-1033, Sumitomo Bakelitt Co.
42	EChE-S	Heatproof, silver-bearing. ρ_v $(2\text{-}3) \cdot 10^{-6}$ Ohm·m Thermal conductivity rating 3.0-3.7 W/m·K Ultimate shear strength with "steel-steel" pair not < 7 MPa	Printed circuit boards and IC assembly.	YUO. 028.052	-
43	EPE	Heatproof, thermally conductive. Silver-bearing. Corrosive activity 0 Withstands 400 °C for 15 mins ρ_v not > $5 \cdot 10^{-6}$ Ohm·cm Thermal conductivity rating 3.5-4.2 W/m·K	Printed circuit boards and IC assembly.	YUO. 028.089	EPO-TEK H20S, Epoxy Technology Co.

No	Products (Brand name)	General distinctive characteristics	Purpose	Specifi-cations	Analogs
		Ultimate shear strength with “steel-steel” pair not < 7 MPa			
44	Irpol-5	Pliant, withstands low temperatures. Silver-bearing. Corrosive activity 0 ρ_v $(2\text{-}3)\cdot10^{-6}$ Ohm·cm Heat conductivity rating not < 1,75 W/m·K Ultimate shear strength in “steel-steel” pair not < 2.5 MPa	Printed circuit boards and IC assembly.	YUO. 028.104	EPO-TEK H20S, Epoxy Technology Co.
45	TPK-1S	Electrically conductive adhesive containing solvent. Silver-bearing. Able to cure at room temperature. ρ_v $5\cdot10^{-6}$ Ohm*cm Ultimate shear strength in “steel-steel” pair not < 5.0 MPa	Printed circuit boards, IC and microwave devices assembly.	6365-007-07615973/-08	-
46	NTK	ρ_v $5.8\cdot10^{-5}$ Ohm·m Heat conductivity 1.8 W/m·K	Radio component base micro assembly and installation.	OST 107.4600 7.004-91	-
47	KPS-1	Electrically conductive adhesive. Single-component. Silver-bearing. Operating temperature range from -60 °C to +200 °C ρ_v not > $1,2\cdot10^{-6}$ Ohm·m Ultimate shear strength in “nickel- nickel” pair not < 5.0 MPa Warranty period of storage not < 2 months	Intended to create a mechanical and electrical (high conductive) contact between the section and the cathode platform in the output frame chip-capacitor.	6365-025-07615973-2017	«CC3020», Ningxia Orient Performance Material research and Development Co.
48	Paste PS-1	Electrically conductive paste, containing solvent. Single-component. Silver-bearing. Operating temperature range from -60 °C to +200 °C ρ_v not > $1,2\cdot10^{-7}$ Ohm·m Ultimate shear strength in “nickel- nickel” pair not < 3,0 MPa	Intended to create the outer cathode layer of the capacitor section.	6365-026-07615973-2017	«CC3020», Ningxia Orient Performance Material research and Development Co.

No	Products (Brand name)	General distinctive characteristics	Purpose	Specifi-cations	Analogs
		Warranty period of storage at temperatures from 0 °C to 6 °C not < 6 months			
Adhesives structural					
49	EDU-UP	High-tensile, moldable, electrically insulating. Ultimate shear strength in "St3-St3" pair 8 MPa Relative elongation 20 %	It is intended for mounting of microcircuits electric and radio components, micro assembly, including in ultrasonic generators manufacture.	RVIC 460008. 062	-
50	EKSU-P	High-tensile, moldable. Ultimate shear strength in "St3-St3" pair 12 MPa Extension strain 15 %	For glass, lenses, microcircuit gluing, micro assembly and so on.	RVIC 460008. 064	-
51	KPS-1031	Able to glue metals, glass, plastics (poly-styrene, polyethyleneterephthalate, ABS), glass textolite.	CEE systems and nodes assembly, components and devices cap layer formation, flexible PCB production. Provide elasticity of a glue line, able to cement roll materials.	6365-003-0761597 3-06	-
52	KPS-1035			6365-003-0761597 3-06	-
53	KOK-2	Single component, heatproof oligomers and non solvent resins based.	For gluing supplies used in semiconductor de-vices and IC manufacture.	6365 - 003-005-0761597 3-07	-
Molding materials epoxy					
54	OPP	Optically-transparent. Light transmittance at the wavelength 0,6÷0,7 μm not <75 % Spiral fluidity > 80 cm	Intended for encapsulation of radio electronic units, collector assembly and other products.	YUO. 028.089	NT-8500, Nitto
55	OPP-1	Molding material with complex filler. Impact toughness >7 J/m^2 Electric strength 25 kW/mm	Intended for encapsulation of radio electronic units, collector assembly and other products.	YUO. 028.089	-

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		Lacquer epoxy-polyarylate cryogenic resistant			
56	LKS	Cryogenic resistant lacquer. Operating temperature range from -196 °C to +150 °C Electric strength not <40 kW/mm ρ_v not < $1 \cdot 10^{17}$ Ohm·m tg at a frequency of 1 GHz not >$1.5 \cdot 10^{-2}$ Peel strength not <4 MPa Heat conductivity not < 0.19 W/m·K	Intended for encapsulation of semiconductor devices functioning in the temperature range from -196 to +150 °C.	YUO. 028.082	-
		Lacquer-foiled dielectrics (non-adhesive)			
57	LFA (№5 department approval)	Aluminum foil and polyimide coating based lacquer-foiled dielectric with lower imidization. Offers polyimide local etch ability for geneating of a required pattern, high strength and electrically insulating properties. Dissolving time of polyimide in monoethanolamine at the temperature of 140 °C 6÷10 s Tensile stress at break of polyimide > 85 MPa	Photochemical manufacture of flexible polyimide carrier used in uncased microcircuit manufacture, ultra reliable switchgear manufacture.	6365-006076 15973-07	-
58	FDI-AP (№ 5 department approval)			YUO. 037.042	-
59	FDI-A-280	Aluminum foil and polyimide coating based lacquer-foiled dielectric with incomplete imidization (thermal imidization at a temperature 280 °C for 30 minutes). Dissolving time of polyimide in mooethanolamine at a temperature of 140 °C 6÷10 s Tensile stress at break of polyimide > 80 MPa		YUO. 037.042	-

No	Products (Brand name)	General distinctive characteristics	Purpose	Specifi-cations	Analogs
60	FDI-A	Aluminum foil and polyimide coating based lacquer-foiled dielectric with maximum imidization (thermal imidization at a temperature 300°C for 30 minutes). Tensile stress at break of a dielectric 100 MPa Double kinks resistance >700 ρ_v $1 \cdot 10^{16}$ Ohm·m	Manufacture of flexible polyimide carriers, RFID tags, acoustic screens and other switching equipment.	YUO. 037.042	-
61	FDI-A-220	Aluminum foil and polyimide coating based lacquer-foiled dielectric. Final material processing temperature 220 °C. Tensile stress at break of a dielectric not 88 <MPa Double kinks resistance not <700	Intended for manufacture of lead frames and flexible printed circuit boards (flexible flat cables).	YUO. 023.051	-
62	FRS	Lacquer-foiled radiation resistant dielectric on aluminum foil with one-sided lacquer coating. Dielectric loss-angle tangent at a frequency 1 GHz <0,02 (no change)	Photochemical production of microelectronic devices and flexible printed circuits, functioning in radiation load conditions.	6563-004-0761597 3-06	-
63	FDI-R1	NM 79 resistance foil and polyimide coating based lacquer-foiled dielectric. Operating temperature range from -60°C to +200 °C	Manufacture of printed flexible heaters using the photochemical method.	YUO. 023.037	-
64	FDI-R2	NM 23 HU-IL resistance foil and polyimide coating based lacquer-foiled dielectric. Operating temperature range from -60°C to +200 °C	Manufacture of precision metal foil resistors.	YUO. 023.037	-
65	EFN-5 EFN-7 EFN-10	Lacquer-foiled dielectric based on polyimide coating and nickel foil 5, 7, 10 μm in depth. Resistant to solar radiation and high temperatures.	Manufacture of foil thermo sensitive resistors with high TCR and sensitive elements and sensors.	YUO. 023.090	-

No	Products (Brand name)	General distinctive characteristics	Purpose	Specifi-cations	Analogs
66	DL-PM	Copper electrolytic foil and polyimide coating based electrically insulating material. Shrinkage after foil stripping < 0,3% Temperature resistance: 300°C - 8 minutes. 400°C - 2 minutes.	Manufacture of flexible printed circuit boards, cables and high-reliability switching equipment, using a photochemical method.	YUO. 037.102	-

Flexible electrical insulating film-clad dielectrics

67	EFL	EFL is a flexible film-clad dielectric of three-layer design consisting of 25÷50 μm thick PET film, thermosetting adhesive and 35, 50, 70 μm thick copper foil. Foil peeling strength >2.8 N/3 mm Thermal shock resistance 205 °C >30 s	Base material for manufacture of flexible PCBs, cables and other switching circuits.	6365-011-07615973-2010	-
68	FDL-A	Flexible roll film-clad material based on PET film, adhesive and aluminum foil.	Intended for manufacture of membranes of acoustic systems and RFID labels.	YUO. 023.076	
69	ELFA-2	Electrically insulating film-clad material, which is a bilaterally film-clad with aluminum foil PET film. Foil peeling strength > 2.5 H/cm	Manufacture of electrically conductive circuits of multipurpose products.	ShKFLO. 023.099	
70	EFP	Film-clad polyimide consisting of polyimide film, adhesive and copper electrolytic foil on one or both sides. Manufactured in sheets by pressing.	Base material for flexible, flex-rigid multilayer printed circuit board and cables.	YUO. 023.094	

No	Products (Brand name)	General distinctive characteristics	Purpose	Specifi-cations	Analogs
Roll film-clad dielectrics with electronic-chemical curing					
71	Film-clad etching glass textolite of electronic and chemical cur-ing STFEO	The material has high physical, mechani-cal and dielectric properties necessary for manufacture of printed circuit boards by subtractive, semi-additive and additive technologies.	Intended for manufacture of single- and double-sided long-length flexible printed circuit boards, including strip, large-format and precision lay-ers of multilayer printed circuit boards and beam-forming circuits. Represents a roll material manufactured with continuous electronic chemical method by sim-ultaneous molding and curing with electron beam of compound material, which includes reinforcing material (heat and chemically treat-ed electrically insulating glass cloth soaked in epoxy polyether acrylate compound material) and copper electrolytic foil with 35.0 μm thick galvanically-resistant coating.	TU 107-87	
Flexible heating multi core material					
72	MGN	Multi core flexible heating material con-sists of a number of resistive cores locat-ed between two conglutinated PET films. Produced in rolls. Material width 580 mm Electric strength not<50 kW/mm	Used for manufacture of flat heating element with power not exceeding 1 kW/m^2.	ShKFLO. 482.004	-
Metal-polymer compound material					
73	MP	Metal-polymer tape based on PET film with decreased static characteristic and light transmittance of less than 0.2 % longer than 300 m. Tensile strength > 120 MPa Double kinks > 50000	For manufacture of perforating data storage of high reliability.	YUO. 037.051	-
Radio absorbing and radio shielding materials					
74	Very wide range flexible	Wavelength operating range 0,2-25 cm Reflection coefficient at least - 17 dB	Intended for: Equipment of anechoic chambers.	Devel-oped for	

No	Products (Brand name)	General distinctive characteristics	Purpose	Specifi-cations	Analogs
	radio absorb-ing material based on nanostructural ferromagnetic microwire	Mass of 1 m^2 1,0 kg Operating temperature range from - 60°C to + 60 °C	Eliminating undiserable electromagnetic back-ground Ensuring environmental electromagnetic safety of biological objects, as well as for addressing issues of passive protection from unauthorized access to information through radio channels.	every type of product	
75	Radio screen-ing textile "Polet"	Screening attenuation coefficient within frequency range from 0.1 MHz to 30 MHz as per magnetic component 2,0 - 40 dB Screening attenuation coefficient within frequency range from 0.1 MHz to 100 MHz as per electric component 80 dB	Intended for establishing screens used to pro-vide electromagnetic compatibility of radio electronic and radio technical facilities and cre-ating etc.	8473-029-0755007 3-07	

Electromagnetic waves absorbers

76	Electromag-netic waves absorber «UNIVER-SAL-BM» Universal – 15BM Universal – 30BM, Universal – 60BM	Reflection coefficient as per power at normal incidence of e/m wave not ex-ceeding minus 10-45 dB	Intended for lining of ceilings, walls, floors of high quality universal anechoic chambers and screened rooms, which provide conduction of high-accuracy measurements of radio parame-ters of electronic equipment, in wide frequency range , antenna equipment and technical facili-ties of electromagnetic compatibility.	1916-026-0750073-06 750	
77	Electromag-netic waves absorber «Tandem»	Reflection coefficient as per power at normal incidence of e/m wave Wave length, cm Refl. coeff., dB 0.8 27 2.0 40 3.0 40 5.0 35	“Tandem” is intended for lining of ceilings, walls, floors of high quality universal anechoic chambers and screened rooms, which provide conduction of high-accuracy measurements of radio parameters of electronic equipment, in wide frequency range , antenna equipment and technical facilities of electromagnetic compati-	5443-41-0755007 3-11	

No	Products (Brand name)	General distinctive characteristics	Purpose	Specifi-cations	Analogs
		10.0 27 30.0 20	bility.		

Photopolymerizable materials

78	FPP composition	Photopolymerizable composition for printed circuit boards is manufactured on the basis on copolymer of metacrylic acid. Liquid from blue to purple color. Resolution ability at layer depth of 15 ÷ 20 μm not < 125 lin/cm	Used to obtain drawing of printed circuit boards and other products by negative and positive methods.	YUO. 028.012	"Positiv-20", Kontakt Chemic Co.
79	FPM composition	Photopolymeric solder mask is a composition based on mixed ethers of epoxy resins. Without solvents. Electric strength 25 - 40 kW/mm ρ_v $1 \cdot 10^{14}$ - $5 \cdot 10^{15}$ Ohm·m	Used for protection of PCB conductors during soldering and local galvanic coating with gold and other metals and machanical protection of PCBs.	YUO. 028.083	-
80	ФСТ-2М composition	Photosensitive composition for manufacture of stencil screens is a composition based on epoxy resin. Without solvents. Stable to solvents: acetone, ethyl alcohol, butyl acetate, toluene, trichloroethylene. Resolution ability – the layer shall reproduce lines with a width of (200±20) μm	Used for manufacture of stencil screens. Runnability – at least 1000 impressions.	6365-021-07615973-2013	-

Shielding thermosetting enamels

81	TZM	Single-component thermosetting enamel for protecting masks. Thixotropic.	To obtain protective masks during tinning and soldering the printed circuit boards by silk-screening.	2312-001-0761597	-

No	Products (Brand name)	General distinctive characteristics	Purpose	Specifi-cations	Analogs
		Adhesion to copper foil 1 point Resistance to triple 180 ^{0}C temperature effect - no changes Electric strength >25 kW/mm		3-01	

Film materials

82	Polyaryl-sulfonic film of PSF-T1 mark	Depth 50÷100 μm Glass transition temperature 180÷190 °C Operating temperature -60÷+150 °C	Used as thermofluid vehicle during manufacture of thermoplastic carbon and fiber glass laminates applied in aircraft and ship construction, radio-electronic equipment of different functional purposes	6365-008-07615973	-
83	Polyaryl-sulfonic film of PSF-T2 mark	Depth 50÷100 μm Glass transition temperature 210÷230 °C Operating temperature -60÷+180 °C			-
84	Polyaryl-sulfonic film with a depth of 200÷500 μm	Glass transition temperature 180÷190 °C Operating temperature -60÷+150 °C	For manufacture of electronic and radio-technical use parts (with direct extrusion method or with pneumatic-and-vacuum molding)	6365-012-07615973	-
85	HDPE film	Film is manufactured from high-density polyethylene. Film width 130÷145 mm Depth 40; 80; 100; 120 μm Tensile stress at break longitudinally not < 29.7 MPa	For casting of ceramic tape; can be used as insulating material	YUO. 037.053	-

Adhesive film materials (with thermosetting or thermoplastic adhesive)

86	PFP-PG	Thermosetting film material of decreased flammability is produced as dry film on glass cloth media. Material depth 50÷100 μm	Indented for gluing of radiotechnical and electronic apparatus. Can glue fiber glass, metals, glass, plastics and ceramics. Can be used for interturn, winding and external insulation of	YUO. 037.129	-

		Breaking tenacity 50 N/cm Electric strength 40 kW/mm ρ_v $1 \cdot 10^{16}$ Ohm·m	wire-wrap products.		
87	TKP-1025	Two-sided thermally-activated adhesive film is produced as dry film without media on anti-adhesion paper. Material depth 60 μm Film width 29÷580 mm Electric strength 20 kW/mm	Gluing of metals, PET, glass textolite.	ShKFLO. 037.046	
88	TKP-1031		Gluing of metals, veneer, PS, PET, PVC, leather and other materials working in bending and multiple overbending.	ShKFLO. 037.046	
89	TKP-1035		Gluing of chip into plastic cards, gluing PVC, glass textolite and metals.	ShKFLO. 037.046	
90	PAP	Coating PET film with single-sided adhesion coating	Used as coating for insulation and protection of flexible PCBs, cables, flat wires and other materials.	6365-013-076 15973-2010	
91	PAS	Gluing PET film with double-sided adhesion coating	Used for gluing for interconnection of multilayer PCBs, MPCs and other laminates and compund materials.	6365-013-0761597 3-2010	

Household electrical heater (film)

92	NEB	Heaters are manufactured on the basis of MGN mark material (manufactured by NIIEM) constituting two insulating films with resistive elements between them. Surface temperature not > 65 °C Overall dimensions 580x1290 mm	Intended for heating of industrial and private premises.	ShKFLO 298.003	

Ceramics, glass

	Products	General distinctive characteristics	Purpose	Specifications	Analogs	
High-frequency ceramic materials with high dielectric capacity value (E)						
93	Material of	E: 90 ± 4 at a frequency of 10^{10} Hz	For delay line base	3491-	There are no known for-	

	T-90 mark	Tg: $4 \cdot 10^{-4}$ at a frequency of 10^{10} Hz Technologically simple to manufacture.		043-0755007 32012	eign analogues
94	Material of MT-20 mark	E: 20 ±0.5 at a frequency of 10^{10} Hz Tg: $2 \cdot 10^{-4}$ at a frequency of 10^{10} Hz Has stable electrophysical parameters at base layer square.	For base layers of microcircuits.	3491-042-0755007 32012	
95	Material of MTS-25 mark	E: (23-30) ±0.5 at a frequency of 10^{10} Hz Tg: $3 \cdot 10^{-4}$ at a frequency of 10^{10} Hz Enables adjusting of E from 23 to 30 without changing the technology.	For phase-shifter elements.	3491-040-0755007 3-2011	
96	Material of MT-60 mark	E: 60 ± 1.0 at a frequency of 10^{10} Hz Tg: $4 \cdot 10^{-4}$ at a frequency of 10^{10} Hz Different metallization methods are allowed. High mechanical strength	For condenser bases.	3491-039-0755007 3-2011	
97	Material of FR-10 mark	E: 10 ± 0.3 at a frequency of 10^{10} Hz Tg: $4 \cdot 10^{-4}$ at a frequency of 10^{10} Hz High mechanical strength which allows to obtain 0.5 mm thick products	For phase-shifter elements.	3491-015-0755007 3-03	
Thermostable microwave ceramics					
98	Material of BA-35 mark	E: 35 ± 0.5 at a frequency of 10^{10} Hz Tg: $3 \cdot 10^{-4}$ at a frequency of 10^{10} Hz TKe 10^{-6} - 0 ± 20	For matching and structure elements, HIC base layers, filters, dielectric resonators and other SHF components	3491-040-0755007 32011	
Low-melting solder glass					
99	Glasses of marks FS-2, FS-4, FS-7	Low softening and soldering temperature 400-500 ^{0}C, possibility to vary electrophysical and mechanical properties.	For sealing of semiconductor devices, soldering alloys in vacuum equipment and electronics	3491-020-0755007 3-05	Products of Japanese companies

High-temperature glass					
100	Glasses of marks BS-92 BS-93	High soldering temperature (flow temperature higher than 600 ^{0}C), possibility to synthesize glasses with different physical, mechanical and electrophysical properties.	For soldering of different materials (ceramics, ferrites, metals) to create complex units and structures	3491-019-07550073-05	Products of Japanese companies