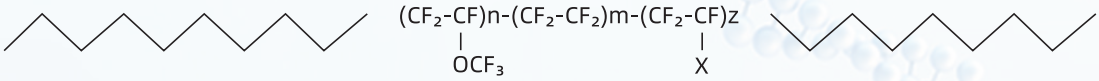
Perfluoroelastomer (FFKM)

Perfluoroelastomer (FFKM) is synthesized by the copolymerization of tetrafluoroethylene monomer (TFE, $CF_2=CF_2$), perfluoro-methyl vinyl ether (PMVE, $CF_3OCF=CF_2$) and cure-site monomer (CSM, Rf-X).

The molecular structural formula is:



Perfluoroelastomer (FFKM) has the following properties compared to other elastomers (rubber):

> High temperature resistance
> Chemical solvent resistance
> Low permeability
> Plasma etch resistance
> Reliability and long service life

The specifications, types, characteristics and temperature resistance range of Yonghong perfluoroelastomers:

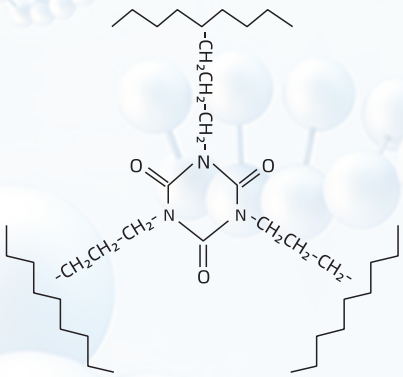
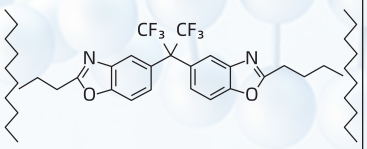
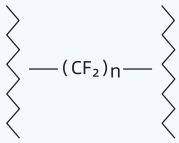
Grades	Purpose	Feature	Min T (° C)	Max T (° C)
PFR-1000-R	General purpose	Outstanding chemical resistance	-10	230
PFR-1100-R	Harsh chemical resistant	Outstanding chemical resistance to amines at high temperature	-10	230
PFR-2000-R	Very high Temp	Excellent high temperature resistance	-10	315
PFR-2100-R	Extreme high Temp	Extreme high temperature resistance	-10	350
PFR-2600-R	High Temp	With organic filler	-10	300
PFR-3000-R	High Temp	Excellent thermal and steam resistant grade	-10	290
PFR-3600-R	High Temp	With organic filler	-10	270

Applications and characteristics of Yonghong perfluoroelastomers:

Products and applications	Semicon	Flat Panel Display	Chemical Industry	Petroleum Oil and natural gases	Pharma	Aerospace
PFR-1000-R	√	√	√	√	√	√
PFR-1100-R	√	√	√	√	√	√
PFR-2000-R	√	√	√	√	√	√
PFR-2100-R	√	√	√	√	√	√
PFR-2600-R	√	√	√		√	
PFR-3000-R	√	√	√	√	√	√
PFR-3600-R	√	√	√	√	√	
Application Features	High purity, chemical resistance, high temp resistance	Resistant to chemicals and temperatures	Resistant to chemicals and temperatures	Resistant to chemicals and temperatures	High purity, chemical resistance, high temp resistance	Resistant to chemicals and high temperature

Perfluoroelastomer (FFKM)

Curing system of Yonghong perfluoroelastomer:

Perfluoroelastomer specifications	PFR-1000-R PFR-1100-R	PFR-2000-R PFR-2100-R PFR-2600-R	PFR-3000-R PFR-3600-R
Curing system	Peroxide vulcanization	Triazine vulcanization	Peroxide vulcanization
Vulcanized structure			
Recommended formulation, vulcanization temperature and time	PFR-1000-R: 100 phr PFR-1000-R 1.5 phr Luperox 101XL-45 3 phr TAlC (50%) Press cure: 160℃ * 15min Post cure: 230℃ * 4h	PFR-2000-R: 100 phr PFR-2000-R 1.2 phr BOAP Press cure: 170℃ * 20min Post cure: 290℃ * (8+16)h	PFR-3000-R: 100 phr PFR-3000-R 1.5 phr Luperox 101XL-45 Press cure:170℃ * 15min Post cure: 290℃* (8+16)h
	PFR-1100-R: 100 phr PFR-1100-R 1.5 phr Luperox 101XL-45 3 phr TAlC (50%) Press cure: 160℃ * 15min Post cure: 230℃ * 4h	PFR-2100-R: 100 phr PFR-2100-R 1.2 phr BOAP Press cure: 170℃ * 20min Post cure: 290℃ * (8+16)h	PFR-3600-R: 100 phr PFR-3600-R 1.0 phr 2,5-dimethyl-2,5-di (tert-butylperoxy) hexane Press cure: 170℃ * 20min Post cure: 230℃* (8+16)h
		PFR-2600-R 100 phr PFR-2600-R 1.2 phr BOAP Press cure: 170℃ * 20min Post cure: 290℃ * (8+16)h	

Packing: It is packaged in a plastic film bag inside an aluminum-plastic composite bag, with 1 kg of raw polymer each.

Perfluoroelastomer (FFKM)

Raw Polymer PFR-1000-R

Product Description:

PFR-1000-R is a chemical resistant perfluoroelastomer. It has a good sealing capability under aggressive environment and excellent compression set values.

Product Features:

> Excellent heat resistance, applicable temperature range from -10℃ to 230℃.
> Outstanding resistance to petroleum oil and corrosive solvents.
> Low compression set.

Product Performance:

	Item		Unit	1030-R	1060-R	1090-R	Test Method
Raw polymer	Mooney viscosity ML (1+10'), 121° C		MU	15-45	46-75	76-120	GB/T 1232.1
	Appearance		/	Translucent			Visual Check
	Density		g/cm³	2.04			GB/T 533
	Fluorine content		%	72.7			Oxygen flask combustion
Post cure	MDR (160℃ * 30min)	MH	dN.m	22.8	23.7	24.5	GB/T 16584
		ML	dN.m	0.7	1.9	2.3	
		Ts2	min:s	0:32	0:30	0:28	
		T90	min:s	2:25	2:35	2:33	
	Hardness		Shore A	70	70	71	GB/T 531 (Shore A)
	Tensile strength		MPa	19.2	19.5	18.5	GB/T 528 (Dumbbell-shaped type 2)
	Elongation at break		%	176	165	156	GB/T 528 (Dumbbell-shaped type 2)
	Compression set 200℃ × 70hr, 25%		%	23	22	20	GB/T 7759.1, 25%, Model B

Note: The values in the typical properties are not intended for use in preparing specifications.
Test formula: 100phr PFR-1000-R, 1.5phr Luperox 101XL-45, 3phr TAIC(50%), 15phr N-990 Carbon Black.

Product Application:

> Widely used in the chemical industry, petroleum oil and natural gas exploitation industry, pharmaceutical production, semiconductor manufacturing and other industrial fields.
> It can be used in the manufacture of components resistant to various corrosive media such as hot organic and inorganic acids, caustics, ketones, aldehydes, esters, ethers, alcohols, fuel oils, solvents, acid gases, hydrocarbons, steam, hot water, etc.
> Various types of elastomeric sealing elements can be manufactured, such as O-rings, gaskets, valve bodies, diaphragms, etc.

Perfluoroelastomer (FFKM)

Raw Polymer PFR-1100-R

Product Description:

PFR-1100-R is a chemical resistant perfluoroelastomer. It has a good sealing capability and excellent compression set values, and is better resistant to organic amines, alkali and some other media than PFR-1000-R type.

Product Features:

> Excellent heat resistance, applicable temperature range from-10℃ to 230℃.
> Outstanding resistance to petroleum oil and corrosive solvents, especially organic amines and alkali media.
> Low compression set.

Product Performance:

	Item		Unit	1130-R	1160-R	1190-R	Test Method
Raw polymer	Mooney viscosity ML (1+10'), 121° C		MU	15-45	46-75	76-120	GB/T 1232.1
	Appearance		/	Translucent			Visual Check
	Density		g/cm³	2.04			GB/T 533
	Fluorine content		%	72.7			Oxygen flask combustion
Post cure	MDR (160℃ * 30min)	MH	dN.m	22.5	25.6	27.2	GB/T 16584
		ML	dN.m	0.6	0.8	1.2	
		Ts2	min:s	0:33	0:33	0:33	
		T90	min:s	2:53	2:42	2:35	
	Hardness		Shore A	72	75	75	GB/T 531 (Shore A)
	Tensile strength		MPa	22.5	23.2	23.5	GB/T 528 (Dumbbell-shaped type 2)
	Elongation at break		%	198	177	170	GB/T 528 (Dumbbell-shaped type 2)
	Compression set 200℃ × 70hr, 25%		%	25	22	23	GB/T 7759.1, 25%, Model B

Note: The values in the typical properties are not intended for use in preparing specifications.
Test formula: 100phr PFR-1100-R, 1.5phr Luperox 101XL-45, 3phr TAlC(50%), 15phr N-990 Carbon Black.

Product Application:

> Widely used in the chemical industry, petroleum oil and natural gas exploitation industry, pharmaceutical production, semiconductor manufacturing and other industrial fields.
> It can be used in the manufacture of components resistant to various corrosive media such as hot organic and inorganic acids, caustics, ketones, aldehydes, esters, ethers, alcohols, fuel oils, solvents, acid gases, hydrocarbons, steam, hot water, etc.
> Various types of elastomeric sealing elements can be manufactured, such as O-rings, gaskets, valve bodies, diaphragms, etc.

Perfluoroelastomer (FFKM)

Raw Polymer PFR-2000-R

Product Description:

PFR-2000-R is a novel perfluoroelastomer that offers excellent heat resistance, broad media resistance, low compression set and strong seal retention at extreme temperatures.

Product Features:

> Excellent heat resistance, applicable temperature range from-10℃ to 300℃. It can be used for short periods of time at 315℃.
> Excellent resistance to petroleum oil and corrosive solvents.
> EExcellent anti-plasma performance.
> Low compression set.

Product Performance:

	Item		Unit	2030-R	2060-R	2090-R	Test Method
Raw polymer	Mooney viscosity ML (1+10'), 121° C		MU	15-45	46-75	76-120	GB/T 1232.1
	Appearance		/	Translucent			Visual Check
	Density		g/cm³	2.04			GB/T 533
	Fluorine content		%	72.7			Oxygen flask combustion
Post cure	MDR (170℃ * 30min)	MH	dN.m	13.6	16.2	17.4	GB/T 16584
		ML	dN.m	0.5	0.9	2.1	
		Ts2	min:s	6:32	5:55	4:27	
		T90	min:s	14:57	13:36	13:18	
	Hardness		Shore A	70	71	72	GB/T 531 (Shore A)
	Tensile strength		MPa	21.5	20.6	22.0	GB/T 528 (Dumbbell-shaped type 2)
	Elongation at break		%	170	165	155	GB/T 528 (Dumbbell-shaped type 2)
	Compression set 290℃ × 70hr, 25%		%	25	23	22	GB/T 7759.1, 25%, Model B

Note: The values in the typical properties are not intended for use in preparing specifications.
Test formula: 100phr PFR-2000-R, 1.2phr BOAP, 20phr N-990 Carbon Black.

Product Application:

> Widely used in the chemical industry, petroleum oil and natural gas exploitation industry, pharmaceutical production, semiconductor manufacturing and other industrial fields.
> Used in the manufacture of components resistant to chemical media such as acids, caustics, ketones, aldehydes, esters, ethers, alcohols, solvents, etc.
> Various types of elastomeric sealing elements can be manufactured, such as O-rings, gaskets, valve bodies, diaphragms, etc.

Perfluoroelastomer (FFKM)

Raw Polymer PFR-2100-R

Product Description:

PFR-2100-R is a novel perfluoroelastomer that offers excellent heat resistance, broad media resistance, low compression set and strong seal retention at extreme high temperatures.

Product Features:

> Excellent heat resistance, capplicable temperature range from-10℃ to 315℃. It can be used for short periods of time at 350℃.
> Excellent resistance to petroleum oil and corrosive solvents.
> Excellent anti-plasma performance.
> Low compression set.

Product Performance:

	Item		Unit	2100-R	Test Method
Raw polymer	Mooney viscosity ML (1+10'), 121° C		MU	65	GB/T 1232.1
	Appearance		/	Translucent	Visual Check
	Density		g/cm³	2.03	GB/T 533
Post cure	MDR (170℃ * 30min)	MH	dN.m	18.3	GB/T 16584
		ML	dN.m	1.3	
		Ts2	min:s	4:35	
		T90	min:s	9.35	
	Hardness		Shore A	70	GB/T 531 (Shore A)
	Tensile strength		MPa	20.2	GB/T 528 (Dumbbell-shaped type 2)
	Elongation at break		%	146	GB/T 528 (Dumbbell-shaped type 2)
	Compression set 290℃ × 70hr, 25%		%	19	GB/T 7759.1, 25%, Model B
	Compression set 350℃ × 24hr, 25%		%	33	GB/T 7759.1, 25%, Model B

Note: The values in the typical properties are not intended for use in preparing specifications.
Test formula: 100phr PFR-2100-R, 1.2phr BOAP, 20phr N-990 Carbon Black.

Product Application:

> Widely used in the chemical industry, petroleum oil and natural gas exploitation industry, pharmaceutical production, semiconductor manufacturing and other industrial fields.
> Used in the manufacture of components resistant to chemical media such as acids, caustics, ketones, aldehydes, esters, ethers, alcohols, solvents, etc.
> Various types of elastomeric sealing elements can be manufactured, such as O-rings, gaskets, valve bodies, diaphragms, etc.

Perfluoroelastomer (FFKM)

Raw Polymer PFR-2600-R

Product Description:

PFR-2600-R is a novel perfluoroelastomer that offers excellent heat resistance. It contains organic filler, and has broad media resistance, low compression set and strong seal retention at extreme temperatures.

Product Features:

> Excellent heat resistance, applicable temperature range from-10℃ to 300℃.
> Excellent resistance to petroleum oil and corrosive solvents.
> Excellent anti-plasma performance.
> Low compression set.

Product Performance:

	Item		Unit	2660-R	2670-R	Test Method
Raw polymer	Mooney viscosity ML (1+10'), 121° C		MU	30-100	50-130	GB/T 1232.1
	Appearance		/	Translucent		Visual Check
	Density		g/cm³	2.04	2.06	GB/T 533
Post cure	MDR (170℃ * 30min)	MH	dN.m	13.2	16.1	GB/T 16584
		ML	dN.m	1.3	2.5	
		Ts2	min:s	4:59	4:05	
		T90	min:s	8:57	8:38	
	Hardness		Shore A	63	74	GB/T 531 (Shore A)
	Tensile strength		MPa	15.7	16.9	GB/T 528 (Dumbbell-shaped type 2)
	Elongation at break		%	219	207	GB/T 528 (Dumbbell-shaped type 2)
	Compression set 290℃ × 70hr, 25%		%	25	28	GB/T 7759.1, 25%, Model B

Note: The values in the typical properties are not intended for use in preparing specifications.
Test formula: 100phr PFR-2600-R, 1.2phr BOAP.

Product Application:

> Widely used in the chemical industry, petroleum oil and natural gas exploitation industry, pharmaceutical production, semiconductor manufacturing and other industrial fields.
> Used in the manufacture of components resistant to chemical media such as acids, caustics, ketones, aldehydes, esters, ethers, alcohols, solvents, etc.
> Various types of elastomeric sealing elements can be manufactured, such as O-rings, gaskets, valve bodies, diaphragms, etc.

Perfluoroelastomer (FFKM)

Raw Polymer PFR-3000-R

Product Description:

PFR-3000-R is a chemical resistant perfluoroelastomer under high temperature. It is peroxide vulcanized and has a good sealing ability under aggressive environment.

Product Features:

> Excellent heat resistance, applicable temperature range from-10℃ to 290℃.
> Excellent resistance to petroleum oil and corrosive solvents under high temperature.

Product Performance:

	Item		Unit	3030-R	3060-R	3090-R	Test Method
Raw polymer	Mooney viscosity ML (1+10'), 121° C		MU	15-45	46-75	76-120	GB/T 1232.1
	Appearance		/	Translucent			Visual Check
	Density		g/cm³	2.04			GB/T 533
	Fluorine content		%	72.7			Oxygen flask combustion
Post cure	MDR (170℃ * 30min)	MH	dN.m	15.8	16.5	17.1	GB/T 16584
		ML	dN.m	1.5	1.7	1.9	
		Ts2	min:s	0:51	0:53	0:54	
		T90	min:s	6:42	6:48	6:56	
	Hardness		Shore A	65	66	66	GB/T 531 (Shore A)
	Tensile strength		MPa	15.8	16.3	17.2	GB/T 528 (Dumbbell-shaped type 2)
	Elongation at break		%	170	173	172	GB/T 528 (Dumbbell-shaped type 2)
	Compression set 290℃ × 70hr, 25%		%	45	46	48	GB/T 7759.1, 25%, Model B

Note: The values in the typical properties are not intended for use in preparing specifications.
Test formula: 100phr PFR-3000-R, 1.5phr Luperox 101XL-45, 15phr N-990 Carbon Black.

Product Application:

> Widely used in aerospace, chemical industry, petroleum oil and natural gas exploitation industry, pharmaceutical production, semiconductor manufacturing and other industrial fields.
> It can be used in the manufacture of components resistant to various corrosive media (such as hot organic and inorganic acids, caustics, ketones, aldehydes, esters, ethers, alcohols, fuel oils, solvents, acid gases, hydrocarbons, steam, hot water, etc.).
> Various types of elastomeric sealing elements can be manufactured, such as O-rings, gaskets, valve bodies, diaphragms, etc.

Perfluoroelastomer (FFKM)

Raw Polymer PFR-3600-R

Product Description:

PFR-3600-R is a chemical resistant perfluoroelastomer under high temperature. It is peroxide vulcanized and contains organic filler. It has a good sealing ability under aggressive environment.

Product Features:

> Excellent heat resistance, applicable temperature range from-10℃ to 270℃.
> Excellent resistance to petroleum oil and corrosive solvents under high temperature.

Product Performance:

	Item		Unit	3660-R	3670-R	Test Method
Raw polymer	Mooney viscosity ML (1+10'), 121° C		MU	30-100	50-130	GB/T 1232.1
	Appearance		/	Translucent		Visual Check
	Density		g/cm³	2.04	2.06	GB/T 533
Post cure	MDR (170℃ * 30min)	MH	dN.m	15.5	18.8	GB/T 16584
		ML	dN.m	1.8	2.9	
		Ts2	min:s	0:55	0:58	
		T90	min:s	6:55	7:12	
	Hardness		Shore A	62	73	GB/T 531 (Shore A)
	Tensile strength		MPa	13.5	16.5	GB/T 528 (Dumbbell-shaped type 2)
	Elongation at break		%	215	195	GB/T 528 (Dumbbell-shaped type 2)
	Compression set 290℃ × 70hr, 25%		%	41	48	GB/T 7759.1, 25%, Model B

Note: The values in the typical properties are not intended for use in preparing specifications.
Test formula: 100 phr of PFR-3600-R 1.0 phr (2,5-Dimethyl-2,5-di (tert-butylperoxy) hexane).

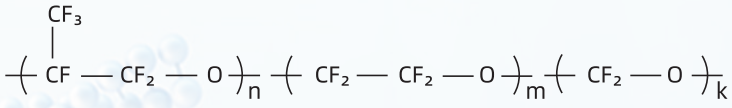
Product Application:

> Widely used in the chemical industry, petroleum oil and natural gas exploitation industry, pharmaceutical production, semiconductor manufacturing and other industrial fields.
> Used in the manufacture of components resistant to chemical media such as acids, caustics, ketones, aldehydes, esters, ethers, alcohols, solvents, etc.
> Various types of elastomeric sealing elements can be manufactured, such as O-rings, gaskets, valve bodies, diaphragms, etc.

Perfluoropolyether (PFPE)

Yonghong perfluoropolyether (PFPE) is synthesized by the polymerization of hexafluoropropylene monomer (HFP, CF3CF=CF2) and oxygen, and a colorless and transparent liquid is obtained after post-treatment.

Chemical structure:



Product Features:

> For most highly corrosive chemicals, such as strong acids, peroxides, etc., it has excellent chemical inertness.
> It has the characteristics of high density, low surface tension, low volatility, non-combustibility, good insulation, good lubricity, etc., and has good compatibility with plastics, rubber and metals.
> It is often used as a heat transfer fluid for many working conditions and as a lubrication use, suitable for high temperature and harsh working environments.
> In the absence of an effective catalyst, PFPE remained stable in therange of 270℃-300℃, even in the presence of oxygen. Its decomposition temperature can reach 350℃-410℃.

Types, grades and applications:

Type	Grade	Application
General Purpose	L	Low viscosity perfluoropolyether can be used as heat transfer fluid, electronic cleaning fluid, electronic reliability test fluid, vapor phase welding fluid, mainly suitable for cleaning of electronic products, heat transfer, testing and welding of electronic products, and can also be used in other chemical-resistant occasions; High viscosity perfluoropolyether can be used as lubricating oil, used in oxygen, fluorine, chlorine, hydrogen and other gas compressors, transfer pump lubrication, can also be used as vacuum pump oil, to meet the requirements of vacuum pumps for high cleanliness electronics industry. It can be used as a polymer processing aid to improve the fluidity and self-lubrication of polymers, reduce wear and improve scratch resistance.
Lubricant Oil	LR	Mainly used in chemical, electronic, machinery, aerospace, nuclear industry and other fields, used in oxygen, fluorine, chlorine, hydrogen and other gas compressors,lubrication of transfer pumps, etc.; It is used for the lubrication of hard disks and other magnetic recording media on computers and other instruments; as a lubricant for hightemperature and chemically stable porous metal bearings, conveyor belts, paper and textile machinery; for the lubrication of rocket nozzles; for lubrication of missile launch systems; lubrication for anti-lock braking systems; Used for lubrication in the nuclear industry, etc.
Vacuum Pumps	VAC	Used as vacuum pump oil to meet the requirements of vacuum pumps for the highly clean electronics industry; Vacuum mechanical pumps for the production of semiconductors using ion etching, LPCVD and plasma culture technologies; Vacuum pumps (rotary vane pumps, molecular pumps, diffusion pumps, etc.) used in environments where corrosive gases are present.
Thermal Conduction	TC	Used in coolant or heat transfer fluid in chemical, semiconductor, nuclear, pharmaceutical and other industries.
Vapor Phase Soldering	VPS	Used as vapor phase soldering fluid in the vapor phase soldering (VPS) process, the latent heat of condensation of perfluoropolyether oil vapor is used to melt the solder.
Polymer Processing Additive	MPA	As a polymer processing aid to improve processability (e.g. improved flowability, extrusion rate and mold release, reduced melt viscosity, reduced die build-up) and improved polymer properties (e.g. enhanced self-lubrication, reduced wear, improved scratch resistance). It can be used for acetal, nylon 6, nylon 12, thermoplastic polyurethane (TPU), SEBS, thermoplastic elastomer (TPE), etc.

Perfluoropolyether (PFPE)

PFPE（General Purpose）PFPE-L

Product Features:

> Zero ozone depletion.
> Good compatibility with various rubbers.
> Good viscosity index, low pour point: can be used in a wide temperature range.
> Excellent thermal stability, chemical stability, solvent resistance (including polar and non-polar solvents), radiation resistance, weather resistance.
> Non-flammable in any circumstances.No flash point, no ignition point, no spont aneous ignition point, and will not burn in the presence of oxygen.

Product Performance:

Property	Test Method	Unit	Technical Standards				
			L-1001	L-1002	L-1003	L-1004	L-1005
Appearance	Visual Check	-	Colorless transparent liquid				
Density (20℃)	GB/T 29617	g/cm³	1.72-1.80	1.80-1.86	1.86-1.90	1.90-1.92	1.90-1.92
Dynamic Viscosity (20℃)	NB/SH/T 0956	mm²/s	< 2	2-10	10-250	250-1000	> 1000
Pour Point	GB/T 3535	℃	< -80	< -60	< -30	< -20	< -15
Boiling Point	GB/T 22226	℃	50-200	200-260	> 260	> 260	> 260
Neutralization Number (KOH)	NB/SH/T 0434	mgKOH/g	0.01	0.01	0.01	0.01	0.01

PFPE（Lubricant oil）PFPE-LR

Product Features:

> The ozone depletion index is zero.
> Excellent low temperature starting torque low evaporation loss.
> Non-toxic, does not react with metal, plastic, rubber, good compatibility with grease.
> Completely flame retardant, no flash point, no ignition point, no spontaneous ignition point, will not burn in the presence of oxygen.
> High viscosity index, good viscosity, low freezing point, suitable for a wide temperature range.
> Excellent thermal stability, chemical stability, solvent resistance, radiation resistance, weather resistance, insulation and dielectric properties.

Product Performance:

Property	Test Method	Unit	Technical Standards											
			LR-5	LR-7	LR-15	LR-22	LR-32	LR-46	LR-68	LR-100	LR-150	LR-220	LR-320	LR-460	LR-520
ISO Viscosity Grade			5	7	15	22	32	46	68	100	150	220	320	460	460
Appearance	Visual Check	-	Colorless transparent liquid												
Density (20℃)	GB/T 29617	g/cm³	1.84	1.86	1.88	1.89	1.89	1.90	1.90	1.91	1.91	1.91	1.91	1.91	1.91
Dynamic Viscosity (20℃)	NB/SH/T 0956	mm²/s	12	17	40	60	95	130	155	300	490	780	1200	1600	1800
Dynamic Viscosity (40℃)	NB/SH/T 0956	mm²/s	5	7	15	22	32	46	68	100	150	220	320	460	505
Dynamic Viscosity (100℃)	NB/SH/T 0956	mm²/s	1.50	1.90	3.18	4.12	5.15	6.6	8.7	12	16.5	22.5	31.8	43	47
Viscosity index	GB/T 1995	-	-	-	56	76	84	92	99	110	116	125	138	145	149
Pour Point	GB/T 3535	℃	-70	-65	-56	-51	-47	-46	-43	-34	-30	-26	-25	-22	-20
Evaporation Weight Loss (120℃, 22hr)	SH/T 0661	%	75	55	8.5	3	1.5	1	0.5	0.1	-	-	-	-	-
Evaporation Weight Loss (204℃, 22hr)	SH/T 0661	%	-	-	-	-	-	-	-	13	1.9	1.5	1.3	1.0	0.5
Neutralization Number (KOH)	NB/SH/T 0434	MgKOH/g	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Note: The above data is typical data.

Perfluoropolyether (PFPE)

PFPE(Vacuum Pumps) PFPE - VAC

Product Features:

> Excellent lubricating properties.
> Low surface tension.
> Low vapor pressure, low evaporation loss.
> Excellent thermal stability, chemical stability, solvent resistance, radiation resistance, weather resistance.
> Fully flame retardant, no flash point, no ignition point, no spontaneous ignition point, will not burn at any oxygen concentration.
> High viscosity index, good viscosity, low freezing point, suitable for a wide temperature range.

Product Performance:

Property	Test Method	Unit	Technical Standards							
			VAC-01L	VAC-02L	VAC-03L	VAC-04L	VAC-01H	VAC-02H	VAC-03H	VAC-04H
Appearance	Visual Check	-	Colorless transparent liquid							
Density (20℃)	GB/T 29617	g/cm³	1.88	1.89	1.90	1.90	1.90	1.90	1.91	1.91
Dynamic Viscosity	NB/SH/T 0956	mm²/s	68	145	165	280	193	287	479	1500
Pour Point	GB/T 3535	℃	-51	-44	-44	-36	-43	-33	-30	-25
Evaporation Weight Loss120 * 22hr	SH/T 0661	%	2.5	-	-	-	-	-	-	-
Evaporation Weight Loss 149 * 22hr	SH/T 0661	%	-	2.2	1.8	0.5	< 1.0	< 0.3	< 0.3	< 0.1
Neutralization Number (KOH)	NB/SH/T 0434	mgKOH/g	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Note: The above data is typical data.

PFPE（Thermal Conduction）PFPE-TC

Product Features:

> The ozone depletion index is zero.
> Non-corrosive to metal materials.
> Excellent insulation and dielectric properties.
> Excellent thermal stability, chemical stability, solvent resistance, radiation resistance, weather resistance.
> Fully flame retardant, no flash point, no ignition point, no spontaneous ignition point, will not burn in the presence of oxygen.
> Wide range of operating temperature.

Product Performance:

Property	Test Method	Unit	Technical Standards									
			TC-55	TC-70	TC-80	TC-100	TC-110	TC-135	TC-150	TC-170	TC-200	TC-230	TC-270
Boiling Point	GB/T 22226	℃	55	70	80	100	110	135	150	170	200	230	270
Appearance	Visual Check	—	Colorless transparent liquid										
Flash Point (Closed)	GB/T 261	℃	Non-flammable in any circumstances, Does not burn at any oxygen concentration.										
Flash Point (Open)	GB/T 3536	℃	Non-flammable in any circumstances, Does not burn at any oxygen concentration.										
Density (20℃)	GB/T 29617	g/cm³	1.66	1.69	1.70	1.71	1.72	1.73	1.76	1.78	1.80	1.83	1.86
Dynamic Viscosity (20℃)	NB/SH/T 0956	mm²/s	0.47	0.53	0.62	0.75	0.85	1.3	1.5	2.1	3.2	5.5	15.5
Pour Point	GB/T 3535	℃	< -120	< -100	< -100	< -90	< -90	< -90	< -90	< -90	< -80	< -70	< -60
Moisture	GB/T 11133	mg/kg	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Neutralization Number (KOH)	NB/SH/T 0434	mgKOH/g	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Note: The above data is typical data.

Perfluoropolyether (PFPE)

PFPE (Vapor Phase Soldering) PFPE-VPS

Product Features:

> Narrow molecular Weight distribution.
> Zero ozone depletion.
> Excellent insulation properties and dielectric properties.
> Non corrosive to metal material, soldering with no residue.
> Outstanding radiation stability excellent weather-resistance.
> Fully flame retardant, no flash point, no ignition point, no spontaneous ignition point, will not burn in the presence of oxygen.

Product Performance:

Property	Test Method	Unit	Technical Standards				
			VPS-200	VPS-215	VPS-230	VPS-240	VPS-260
Boiling Point	GB/T 22226	℃	200	215	230	240	260
Appearance	Visual Check	—	Colorless transparent liquid				
Flash Point (Closed)	GB/T 261		Non-flammable in any circumstances, Does not burn at any oxygen concentration.				
Flash Point (Open)	GB/T 3536		Non-flammable in any circumstances, Does not burn at any oxygen concentration.				
Density (20℃)	GB/T 29617	g/cm³	1.80	1.82	1.83	1.84	1.85
Dynamic Viscosity (20℃)	NB/SH/T 0956	mm²/s	3.2	4.3	5.5	6.2	14.5
Pour Point	GB/T 3535	℃	< -80	< -70	< -70	< -60	< -60
Moisture	GB/T 11133	mg/kg	< 20	< 20	< 20	< 20	< 20
Neutralization Number (KOH)	NB/SH/T 0434	MgKOH/g	0.01	0.01	0.01	0.01	0.01

Note: The above data is typical data.

PFPE（Polymer Processing Additive) PFPE-MPA

Product Features:

> Excellent compatibility with various kinds of plastics and rubbers.
> Enhance polymer self-lubrication, reduce wear and improve scratch resistance.
> Excellent thermal stability, chemical stability, solvent resistance, radiation resistance, weather resistance.
> Fully flame retardant, no flash point, no ignition point, no spontaneous ignition point, will not burn in the presence of oxygen.
> Improve polymer processing performance, improve flowability, extrusion rate and mold release, reduce melt viscosity, and reduce die build-up.

Product Performance:

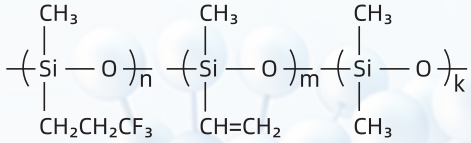
Property	Test Method	Unit	Technical Standards		
			MPA-01	MPA-02	MPA-03
Appearance	Visual Check	—	Colorless transparent liquid		
Density (20℃)	GB/T 29617	g/cm3	1.84	1.91	1.91
Dynamic Viscosity (20℃)	NB/SH/T 0956	mm2/s	12	330	360
Dynamic Viscosity (40℃)	NB/SH/T 0956	mm2/s	5	110	120
Evaporation Weight Loss 120 * 22hr	SH/T 0661	%	-	< 1%	< 1%
Pour Point	GB/T 3535	℃	-70	-35	-33
Neutralization Number (KOH)	NB/SH/T 0434	mgKOH/g	0.01	0.01	0.01

Note: The above data is typical data.

Fluorosilicone Rubber (FVMQ)

Fluorosilicone rubber (FVMQ) is an elastomer obtained by homopolymerization of tris(trifluoropropyl) trimethylcyclotrisiloxane (abbreviated as D3F) or copolymerization with other silicone monomers. The backbone of fluorosilicone rubber is the same as the common silicone rubber (VMQ) while the side chain of flurosilicone rubber introduces a trifluoropropyl group, so fluorosilicone rubber perfectly combines the advantages of fluorocarbon rubber (FKM) such as excellent oil resistance and high temperature workability, and the advantages of silicone rubber (VMQ) such as good softness and outstanding low temperature and high temperature workability. Fluorosilicone rubber is suitable for applications in low temperature, high temperature, and solvent resistant and oil Fluorosilicone Rubber （FVMQ) resistant environments.

Chemical structure:



Product Features:

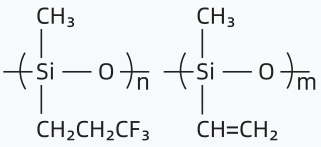
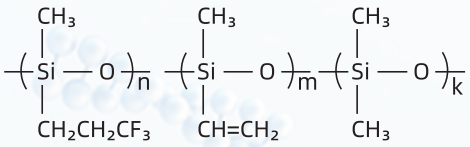
> Easily processed; Easily pigmented.
> Retaining properties over a wide temperature range of -60℃ to 230℃.
> Good anti-flammability.
> Suitable to produce rubber compounds of many different durometers, Hardness (Shao A) 20-90.
> Excellent oil resistance; outstanding apolar solvent resistance.
> Designed to meet many standards including ASTM, D2000MIL-R-25988, BMS-1-530.

Yonghong fluorosilicone products:

Product name	Product Grade	Product Introduction
Fluorosilicone Raw Gum	HFS-G	It is divided into raw gum for high temperature curing and raw gum for room temperature curing. High temperature curing raw gum is homopolymerized fluorosilicone raw gum HF S-G-1000HR and copolymer fluorosilicone raw gum HFS-G-2000HR; Room temperature curing with raw gum homopolymer fluorosilicone raw gum HFS-G-1000RR and copolymer fluorosilicone raw gum HFS-G-2000RR.
Fluorosilicone Compound	HFS-HR	It is divided into general purpose HFS-HR-1000GP, HFS-HR-2000GP; low Compression HFS-HR-1001LC; High Tear Strength HFS-HR-1000HT; Economic grade HFS-HR-1000EC; Extrusion grade HFS-HR-1000ET; No Post Cure grade HFS-HR-1000NP.
Fluorosilicone Oil	HFS-L	Compared with fluorosilicone rubber, it is a fluorosilicone polymer with a lower molecular weight and a viscosity of less than 400Pa·s. Which is including Hydroxyl terminated fluorosilicone oil HFS-L-1000, methyl-terminated fluorosilicone oil HFS-L-1100, vinylterminated fluorosilicone oil HFS-L-1200 and copolymer branched and end group with vinyl fluorosilicone oil HFS-L-2000.
Fluorosilicone Additives	HFS-A	Additives for fluorosilicone raw rubber polymerization and for fluorosilicone compounding. Additives for fluorosilicone polymerization: A-05 is used to control the molecular weight of polymers; A-07 is used to terminate polymerization reactions. Auxiliaries for fluorosilicone compounds: A-01 and A-03 are used to extend the storage stability of fluorosilic one compounds; A-02 and A-04 are used to improve the tear strength of fluorosilicone compounds; A-06 is used to improve the high temperature performance of fluorosilicone compounds.

Fluorosilicone Rubber (FVMQ)

HTV Gum

Type	HTV Homopolymer Gum HFS-G-1000HR				HTV Copolymer Gum HFS-G-2000HR		
Product structure							
Product features	> Homogeneous molecular weight distribution. > Homogeneous vinyl content distribution. > Low volatile Matter. > Easily mixed with different types of fillers such as silica, calcium carbonate, diatomite, and quartz powder.				> Homogeneous molecular weight distribution. > Homogeneous vinyl content distribution. > Easy blending with methyl silicone rubber. > Easily mixed with different types of fillers such as silica, calcium carbonate, diatomite, and quartz powder.		
Appearance	Colorless or slightly yellowish transparent solid, no mechanical impurities.				Colorless or slightly yellowish transparent solid, no mechanical impurities.		
Density	1.30 g/cm³				1.15 g/cm³		
Vinyl content	0.1-1.5 mol%				0.3 mol%	0.3 mol%	0.08mol%
Volatile Matter	2.0% (150℃ × 3hr)				2.5% (150℃ × 3hr)		
Molecular Weight	500k	800k	1000k	1200k	500k	700k	700k
Grade	G-1001HR	G-1002HR	G-1003HR	G-1004HR	G-2001HR	G-2002HR	G-2003HR

Note: The above data is typical data.

HFS-G-1000HR Applications:

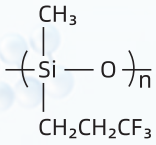
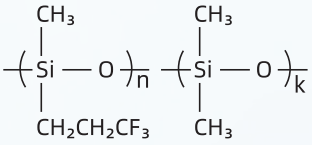
> Suitable for applications as sealing materials for petroleum oil, lubricant oil, hydraulic oil, transformer oil, and apolar chemical reagents in low temperature and/or high temperature enviroments.
> Suitable to produce molded, extruded and calendered parts including O-rings, gaskets, fuel-line quick-connect seals, oil seals, sealing strips, diaphragms, membranes, valves, hydraulic and electrical clamp blocks.
> Widely used in automobile industry, aerospace industry, petroleum chemical industry and military industry.

HFS-G-2000HR Applications:

> It can manufacture high and low temperature resistant sealing materials with medium oil resistance and reagent.
> Suitable to produce molded, extruded and calendered parts including O-rings, gaskets, fuel-line quickconnect seals, oil seals, sealing strips, diaphragms, membranes, valves, hydraulic and electrical clamp blocks.
> Improve the performance of silicone rubber and fluoroelastomer materials; Improve the performance of silicone resistance rubber and fluorosilicone rubber combined materials.
> Widely used in automobile industry, aerospace industry, petroleum chemical industry.

Fluorosilicone Rubber (FVMQ)

RTV Gum

Type	RTV Homopolymer Gum HFS-G-1000RR				RTV Copolymer Gum HFS-G-2000RR			
Product structure								
Product features	> Homogeneous molecular weight distribution. > Liquid, easy-flowing, base polymer for putty/ adhesives/sealants. > Low volatile matter, short time for surface drying.				> Liquid, easy-flowing, base polymer for putty/ adhesives/sealants. > Easy to blend with dimethicone.			
Appearance	Colorless or slightly yellowish transparent liquid, no mechanical impurities.				Colorless or slightly yellowish transparent liquid, no mechanical impurities.			
Density	1.28 g/cm³				1.15g/cm³	1.08g/cm³	1.00g/cm³	1.15g/cm³
pH value	Neutral				Neutral			
Volatile Matter	1.5% (180℃ × 3hr)				6% (180℃ × 3hr)			
Viscosity*	1-10 Pa·s	10-40Pa·s	40-90Pa·s	90-200Pa·s	1-40Pa·s		40-200Pa·s	
Grade	G-1001RR	G-1002RR	G-1003RR	G-1004RR	G-2001RR	G-2002RR	G-2003RR	G-2004RR

Note: Each grade specifies the viscosity range, and the actual viscosity can be controlled at ±10% of the required viscosity
Other data are typical values.

RTV Homopolymer Gum HFS-G-1000RR Applications:

> Suitable to be the base polymer of putty, adhesive and sealant for oil/solvent-resistant and high-low temperature applications, such as the overall sealing and caulking of aircraft fuel tanks, the assembly and repair of small motors that cannot be welded, and the support plate of fuel operating systems.
> Bonding/ fixation/repairation of fluorosilicone rubber gaskets.
> Bonding between fluororubber and silicone rubber products.

RTV Copolymer Gum HFS-G-2000RR Applications:

> It is suitable for the matrix polymer of the bonding agent of fluorosilicone rubber and silicone rubber products, and the bonding agent of silicone rubber and fluororubber products.
> It is suitable for medium oil resistance, solvent resistance, high and low temperature resistant putty, adhesive, sealant matrix polymer, such as fuel operating system support plate, need to be solvent clean parts sealed.

Fluorosilicone Rubber (FVMQ)

HTV Base

Type	Main ingredients	Product features	Application
Homopolymer General Purpose HFS-HR-1000GP	Fluorosilicone homopolymer raw gum and flumed silica	1）Excellent oil resistance; outstanding apolar solvent resistance 2）Retaining properties over a wide temperature range of -60℃ to 230℃ 3）Easily processed; Easily pigmented	1）Suitable for applications as sealing materials for petroleum oil, lubricant oil, hydraulic oil, transformer oil, and apolar chemical reagents in low temperature and/or high temperature enviroments 2）Suitable to produce molded, extruded and calendered parts including O-rings, gaskets, fuel-line quick-connect seals, oil seals, sealing strips, diaphragms, membranes, valves, hydraulic and electrical clamp blocks 3）Widely used in automobile industry, aerospace industry, petroleum chemical industry etc
Low Compression HFS-HR-1001LC		1）Good anti-structure property 2）Excellent oil resistance and out-standing a polar solvent resistance 3）Retaining properties over a wide temperature range of -60℃ to 230℃ 4）Very low compression set 5）Easily processed and easily pigmented	
High Tear Strength HFS-HR-1000HT		1）High tear strength 2）Excellent oil resistance and outs-tanding apolar solvent resistance 3）Retains properties over a wide temperature range of -60-230℃ 4）Easily processed and easily pigmented	
Economic HFS-HR-1000EC		1）Excellent value for money 2）Excellent oil resistance, nonpolar solvent resistance 3）Wide use temperature -60-230 ℃ 4）High resilience	
No Post Cure HFS-HR-1000NP		1）No Post Cure 2）Excellent oil resistance, nonpolar solvent resistance 3）Wide use temperature -60-230 ℃ 4）Easily processed and easily pigmented	
Economic HFS-HR-1000ET		1）For Extrusion 2）Excellent oil resistance and outstanding apolar solvent resistance 3）Retains properties over a wide temperature range of -60-230 4）Easily processed and easily pigmented	1）This product is suitable for extrusion application. Suitable to produce pipes, sealing stripes, and special-shaped parts for contacting petroleum oil, lubricant oil, hydraulic oil, and apolar chemical reagents in low temperature and/or high temperature enviroments 2）Widely used in automobile industry, aerospace industry, petroleum chemical industry etc
Copolymer General Purpose HFS-HR-2000GP	Fluorosilicone copolymer raw gum and flumed silica	1）Easy blending with methyl silicone rubber; 2）Retains properties over a wide temperature range of -60-230℃3）Easily processed and easily pigmented	1）It can manufacture medium oil resistance and reagent resistant high and low temperature resistant sealing materials 2）Improve the performance of silicone rubber and fluoroelastomer materials; Improve the performance of silicone rubber and fluorosilicone rubber combined materials 3）Suitable to produce molded, extruded and calendered parts including O-rings, gaskets, fuel-line quick-connect seals, oil seals, sealing strips, diaphragms, membranes, valves, hydraulic and electrical clamp blocks

Fluorosilicone Rubber (FVMQ)

HTV Base

Properties 1

Type/ Purpose	Grade	Gravity g/cm³	Hardness (Shao A)	Tensile Die C, MPa	Elongation at Break Die C, %	Tear Strength, Die B, kN/m	Compression Set (22hr/177°C)%		Volume Swell in Reference Fuel B(70hr/23°C)%
							Molded	Post-cured	
Test method		ASTM D792	ASTM D2240	ASTM D412	ASTM D412	ASTM D624	ASTM D395, Method B		ASTM D471
General Purpose HR-1000GP	HR-1030GP	1.40	30	8.5	450	15	—	12	20
	HR-1040GP	1.42	40	9	350	16	—	11	20
	HR-1050GP	1.44	50	9.5	320	17	—	11	18
	HR-1060GP	1.46	60	9.5	270	17	—	11	18
	HR-1070GP	1.47	70	9	210	17	—	12	18
	HR-1080GP	1.50	80	8	165	18	—	12	18
Low Compression HR-1001LC	HR-1031LC	1.40	30	8.5	480	15	—	8	20
	HR-1041LC	1.42	40	9.5	380	16	—	7	20
	HR-1051LC	1.44	50	10	330	17	—	7	18
	HR-1061LC	1.46	60	10	290	17	—	8	18
	HR-1071LC	1.47	70	10	210	18	—	8	18
	HR-1081LC	1.50	78	9	175	18	—	9	18
High Tear Strength HR-1000HT	HR-1030HT	1.42	30	9.5	550	28	—	8	20
	HR-1040HT	1.43	40	10.5	500	35	—	7	18
	HR-1050HT	1.45	50	11	450	40	—	7	18
	HR-1060HT	1.47	60	11	380	40	—	7	18
	HR-1070HT	1.49	70	9	300	30	—	9	20
	HR-1050ET	1.46	50	11	350	17	—	15	20
Extrusion* HR-1000ET*	HR-1060ET	1.49	60	11	300	18	—	15	20
	HR-1070ET	1.50	70	11	230	18	—	15	20
Economic HR-1000EC	HR-1030EC	1.42	30	6	165	14	—	12	22
	HR-1040EC	1.43	40	7	225	20	—	11	20
	HR-1060EC	1.48	60	7	200	20	—	12	19
	HR-1080EC	1.50	80	5.5	125	15	—	10	19

Fluorosilicone Rubber (FVMQ)

HTV Base

Properties 2

Type/ Purpose	Grade	Gravity g/cm³	Hardness (Shao A)	Tensile Die C, MPa	Elongation at Break Die C, %	Tear Strength, Die B, kN/m	Compression Set (22hr/177℃)%		Volume Swell in Reference Fuel B(70hr/23℃)%
							Molded	Post-cured	
Test method		ASTM D792	ASTM D2240	ASTM D412	ASTM D412	ASTM D624	ASTM D395, Method B		ASTM D471
Copolymer HR-2000GP	HR-2030GP	1.30	30	6	350	20	—	18	135
	HR-2040GP	1.31	40	7.5	400	25	—	15	130
	HR-2060GP	1.33	60	7	250	25	—	16	125
	HR-2080GP	1.40	80	5.5	175	18		18	125
No Post Cure* HR-1000NP*	HR-1030NP	1.42	30	9	350	21	13	7	22
	HR-1040NP	1.43	40	10	375	25	12	8	20
	HR-1060NP	1.48	60	10	325	22	12	8	19
	HR-1080NP	1.50	80	8	175	16	16	9	19

Note 1: The above data is a typical value, (except for extrusion type HR-1000ET) The test procedure is: first refine several times on the open mill, according to 100 parts of mixed rubber, add 1 part Heat-resistant additive (HFS-A-06), 0.55 parts vulcanizing agent (2,5-dimethyl-2,5-di-tert-butyl peroxide hexane), then molded 15 minutes at 171℃ on the molding machine, and post-cured 4 hours at 200℃.
Note 2: The customer needs other vulcanization temperatures, and the rubber needs to change the vulcanization system.
Note 3: Rubber of different hardness grades can be mixed in any proportion to obtain various hardness within 30 -80.

Extrusion *HR-1000ET*:

Note 4: The above data are typical values, not data of extruded products; The test procedure is: first refine several times on the mill, according to 100 parts of mixed rubber, add 1 part heat-resistant addition(HFS-A-06), 1.35 parts vulcanizing agent (bis (2,4-dichlorobenzoyl peroxide)), then molded 15 minutes at 171℃ on the molding machine, and post-cured 4 hours at 200℃.
Note 5: The vulcanization temperature and vulcanization time of the molded stage and the post cured stage during extrusion molding are changed according to the actual process.

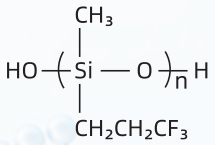
No Post Cure *HR-1000NP*:

Note 6: The above data is a typical value, the test procedure is: first re-refine several times on the mill, according to 100 parts of the compound, add 1 part heat-resistant additive (HFS-A-06), 0.55 parts vulcanizing agent (2,5-dimethyl-2,5-di-tertbutyl peroide hexane), and then a section of vulcanization molding on the molding machine. then molded 15 minutes at 171℃ on the molding machine, and post-cured 4 hours at 200℃.
Note 7: The customer needs other vulcanization temperatures, and the rubber needs to change the vulcanization system.

Fluorosilicone Oil

HFS-L-1000 Hydroxyl Terminated

Chemical Structure of Fluorosilicone Oil:



Features of Fluorosilicone Oil:

> Excellent hydrophobic and lipophobic properties
> High flash point, non-flammable

Typical Properties:

Property	Test Method	Unit	Technical Standards			
			L-1001	L-1002	L-1003	L-1004
Appearance	Vision		Colorless transparent liquid			
Density (25℃)	GB/T 1884	g/cm³	1.27	1.28	1.28	1.28
Viscosity (25℃)	GB/T 10247	Pa·s	0.1-1	1-10	10-100	> 100
Flash Point	GB/T 3536	℃	> 200	> 200	> 200	> 200
pH Value	-	-	6-7			

Application:

> HFS-L-1001(low molecular weight) can be used as structural control agent in processing fluorosilicone rubber. It can also be used as a modifier in the polymerization of other polymers to add hydrophobic and lipophobic properties.
> HFS-L-1002/1003/1004 (low molecular weight) can be used as additive in processing FKM and self-lubricating silicone rubber.

Package and Shipment:

> PE plastic drum, available in 5kg, 10kgs, 20kgs, or according to customers' requirements.
> It is shipped as non-dangerous liquid goods.

Storage:

> It shall be stored in a dry and ventilate place and its shelf life is one year.
> It shall be stored in a neutral place to avoid contact with acidic or alkalic substances.

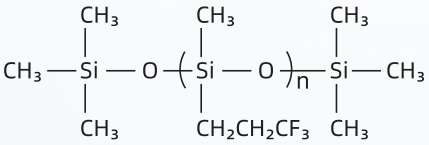
Handling Precautions:

> It is a non-dangerous goods with flash point (open cup) of over 200℃. It does no harm to eyes, skin, or other human organs.
> Please do not contact this product with acidic or alkalic substances to avoid decomposing.
> For other safety issues, please review MSDS of the product or contact sales representatives.

Fluorosilicone Oil

HFS-L-1100 Methyl Terminated

Chemical Structure of Fluorosilicone Oil:



Features of Fluorosilicone Oil:

> Excellent hydrophobic and lipophobic properties
> High flash point, non-flammable
> Good defoaming capability in non-polar solvents and oils
> High viscosity index; can be used in a wide temperature range
> Excellent thin film adhesion of lubricating oil
> Good compatibility with rubbers

Typical Properties:

Property	Test Method	Unit	Technical Standards			
			L-1101	L-1102	L-1103	L-1104
Appearance	Vision		Colorless transparent liquid			
Density (25℃)	GB/T 1884	g/cm³	1.23-1.27	1.27-1.29	1.28-1.31	1.28-1.31
Viscosity (25℃)	GB/T 10247	Pa·s	0.1-1	1-10	10-100	> 100
Pour Point	GB/T 3535	℃	-42	-10	-	-
Flash Point (open cup)	GB/T 3536	℃	300	> 300	> 300	> 300
Surface Tension	GB/T 22237	dynes/cm	26	28	28	29
pH Value	-	-	6-7			

Application:

> It is mainly used as defoaming agent.
> It can be used as base oil of lubricant or grease.

Package and Shipment:

> PE plastic drum, available in 5kg, 10kgs, 20kgs, or according to customers' requirements.
> It is shipped as non-dangerous liquid goods.

Storage:

> It shall be stored in a dry and ventilate place and its shelf life is one year.
> It shall be stored in a neutral place to avoid contact with acidic or alkalic substances.

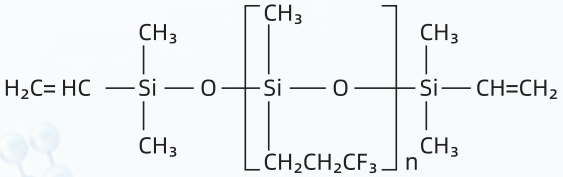
Handling Precautions:

> It is a non-dangerous goods with flash point (closed cup) of over 300℃. It does no harm to eyes, skin, or other human organs.
> It is prohibited to heat this product in high temperature. Its highest contact temperature is 150℃. A higher temperature might volatile this product.
> Please do not contact this product with acidic or alkalic substances to avoid decomposing.
> For other safety issues, please review MSDS of the product or contact sales representatives.

Fluorosilicone Oil

HFS-L-1200 Homopolymer Vinyl Terminated

Chemical Structure of Fluorosilicone Oil:



Features of Fluorosilicone Oil:

> The end group has a reactive vinyl group, which is easy to participate in the reaction.
> With high vinyl content. It is easy to adjust the total content of vinyl in compound and sealant.

Typical Properties:

Property	Test Method	Unit	Technical Standards			
			L-1201	L-1202	L-1203	L-1204
Appearance	Vision	-	Colorless transparent liquid			
Density (25℃)	GB/T 1884	g/cm³	1.25-1.30	1.25-1.30	1.25-1.30	1.25-1.30
Viscosity (25℃)	GB/T 10247	Pa·s	0.1-1	1-10	10-100	> 100
Flash Point (open cup)	GB/T 3536	℃	> 260	> 260	> 260	> 260
pH Value	-	-	6-7			

Application:

> Vinyl terminated fluorosilicone oil with low viscosity is suitable to be used as:mold releasing agent with resistance to corrosion and solvents; reactive diluent for fluorosilicone rubber vulcanization; necessary additive in processing fluorosilicone rubber.
> Vinyl terminated fluorosilicone oil with high viscosity is mainly used in the production of addition type fluorosilicone rubber.

Package and Shipment:

> PE plastic drum, available in 1kg, 5kgs, 10kgs, or according to customers' requirements.
> It is shipped as non-dangerous liquid goods.

Storage:

> It shall be stored in a dry and ventilate place and its shelf life is one year.
> It shall be stored in a neutral place to avoid contact with acidic or alkalic substances.

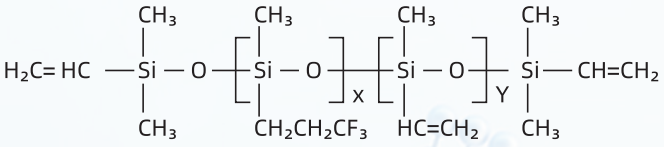
Handling Precautions:

> It is a non-dangerous goods with flash point (open cup) of over 260℃. It does no harm to eyes, skin, or other human organs.
> It is prohibited to heat this product in high temperature. Its highest contact temperature is 150℃. A higher temperature might volatile this product.
> Please do not contact this product with acidic or alkalic substances to avoid decomposing.
> For other safety issues, please review MSDS of the product or contact sales representatives.

Fluorosilicone Oil

HFS-L-2000 Compolymer Vinyl Terminated

Chemical Structure of Fluorosilicone Oil:



Features of Fluorosilicone Oil:

> The end group has a reactive vinyl group, which is easy to participate in the reaction.
> With high vinyl content. It is easy to adjust the total content of vinyl in compound and sealant.

Typical Properties:

Property	Test Method	Unit	Technical Standards	
			L-2001	L-2002
Appearance	Vision	-	Colorless transparent liquid	
Density (25℃)	GB/T 1884	g/cm³	1.25-1.30	1.25-1.30
Viscosity (25℃)	GB/T 10247	Pa·s	0.1-1	1-10
Flash Point (open cup)	GB/T 3536	℃	> 260	> 260
Vinyl Content	-	%	0.1-10	10-40
pH Value	-	-	6-7	

Application:

> Vinyl terminated fluorosilicone oil with low viscosity is suitable to be used as:mold releasing agent with resistance to corrosion and solvents; reactive diluent for fluorosilicone rubber vulcanization; necessary additive in processing fluorosilicone rubber.
> Vinyl terminated fluorosilicone oil with high viscosity is mainly used in the production of addition type fluorosilicone rubber.

Package and Shipment:

> PE plastic drum, available in5kg, 10kgs, 20kgs, or according to customers' requirements.
> It is shipped as non-dangerous liquid goods.

Storage:

> It shall be stored in a dry and ventilate place and its shelf life is one year.
> It shall be stored in a neutral place to avoid contact with acidic or alkalic substances.

Handling Precautions:

> It is a non-dangerous goods with flash point (open cup) of over 260℃. It does no harm to eyes, skin, or other human organs.
> It is prohibited to heat this product in high temperature. Its highest contact temperature is 150℃. A higher temperature might volatile this product.
> Please do not contact this product with acidic or alkalic substances to avoid decomposing.
> For other safety issues, please review MSDS of the product or contact sales representatives.

Fluorosilicone Rubber Additive

Fluorosilicone Rubber Additive HFS-A-01

Product Description:

It is a trifluoropropyltrimethylcyclotrisiloxane (D3F) oligomer, which is used in the production of fluorosilicon compound, which can reduce the mixing time of silica, quartz powder and other fillers, and reduce the structure of fluorosilicon mixture storage when stored.

Product Performance:

Item	Unit	Technical Standards
Appearance	-	Colorless or slightly yellowish transparent liquid
Density	g/cm3	1.25-1.27
Viscosity	Pa·s	0.1-0.15
pH Value	-	Neutral
Refractive index	-	1.372-1.376

Fluorosilicone Rubber Additive HFS-A-02

Product Description:

It is a trifluoropropyltrimethylcyclotrisiloxane (D3F) oligomer, which can reduce the mixing time of silica, quartz powder and other fillers when used in the production of fluorosilicone compound; At the same time, it can improve the tear strength of fluorosilicon compound.

Product Performance:

Item	Unit	Technical Standards
Appearance	-	Colorless or slightly yellowish transparent liquid
Density	g/cm3	1.10-1.15
Viscosity	Pa·s	1-10
pH Value	-	Neutral
Refractive index	-	1.396-1.402

FKM Curative M1

Appearance and Odor:

White bulk or pellets, none odor.

Applications:

FKM Curative M1 is a diphenol curing system for fluorocarbon rubbers (fluoroelastomers or FKM), with a good combination of the crosslinking agent, Bisphenol AF (BPAF) and fluorocarbon rubbers. It is designed to provide customers with safe processability by avoiding using the powder form of Bisphenol AF (BPAF) for dust generation. FKM Curative M1 can offer good quality finished fluorocarbon rubber compouds and safety in processing to customers.

Properties	Specifications
Bishpneol AF (BPAF)	49-51%
FKM	49-51%
BPAF:FKM=1:1 (wt)	

FKM Curative M2

Appearance and Odor:

White bulk or pellets, none odor.

Applications:

FKM Curative M2 is a diphenol curing system for fluorocarbon rubbers (fluoroelastomers or FKM), with a good combination of the curing accelerator Benzyl triphenylphosphonium chloride (BPP) and fluorocarbon rubbers. It is designed to provide customers with safe processability by avoiding using the powder form of Benzyl triphenylphosphonium chloride (BPP) for dust generation and toxict. FKM Curative M2 can offer good quality finished fluorocarbon rubber compouds and safety in processing to customers.

Properties	Specifications
FKM	66-67%
BENZYLTRIPHENYLPHOSPHONIUM CHLORIDE (BPP)	34-33%
BPP:FKM=1:2 (wt)	