

The DAIKIN logo consists of the word "DAIKIN" in a bold, blue, sans-serif font. To the left of the text is a square graphic divided diagonally from the top-left to the bottom-right. The upper-left portion of the square is black, and the lower-right portion is blue.

Product Information

Daikin PTFE

Fine Powders

Daikin PTFE (polytetrafluoroethylene) fine powders are soft, white polymers that are produced from PTFE aqueous dispersions. These fine powders possess the lowest coefficient of friction, the highest heat resistance, chemical resistance, electrical properties, and non-sticking properties of all fluoropolymers.

Daikin PTFE fine powders readily adsorb organic solvents resulting in the formation of a paste that can be easily extruded into thin, flexible sections.

Thermal Properties:

Daikin PTFE fine powders can be used continuously at temperatures up to 260°C (500°F) and for short periods of time at higher temperatures. They also possess excellent low temperature strength.

Chemical Properties:

Daikin PTFE fine powders are completely inert to attack by all chemicals except high-temperature, high-pressure elemental fluorine gas, molten alkali metals and chlorine trifluoride.

Electrical Properties:

The non-polar molecular structure makes Daikin PTFE fine powders ideal for use as high-frequency insulating material. The dielectric constant and dissipation factor are uniformly low over a wide frequency range.

Low Friction:

Under ordinary conditions of use, Daikin PTFE fine powders possess the lowest coefficient of friction of any solid material. Also, the non-stick properties of these products prevent most materials from adhering to them.

Typical Applications:

Insulated Electrical Wire: Electric wire insulation material for aerospace, electric circuits, transformers, electric motors, industrial wiring, high temperature wiring for power stations, electric furnaces, vacuum tubes, and wiring subjected to corrosive chemical environments.

Hoses, Tubes For: Fuels, high-temperature or corrosive fluids in chemical or nuclear plants, foods, chemicals, oil hydraulic equipment, push-pull cables, and wire insulation for electronic equipment.

Thin rods: Pump and valve parts, terminals, bushings, and outer insulators.

Unsintered Tape For: Sealing threaded pipe joints, wraps for chemical and heat resistance, insulation of wire or coil, film, and splicing or repairing PTFE extrusion-insulated wires.

Typical Properties of Daikin PTFE Fine Powder:

Property	F-100 Series	F-200 Series	F-300 Series
Type of Polymer	Homopolymer	Modified	Modified
Average Particle Size ¹ , μm	500	500	500
Apparent density ¹ , g/l	450	450	450
Melting Point ¹ , °C(°F)	326-328(619-622)	322-328(612-622)	322-328(612-622)
Tensile Strength ² , MPa(psi)	> 19.6(2842)	> 19.6(2842)	> 19.6(2842)
Elongation ² , %	> 300	> 350	> 250
Reduction Ratio ³	1,000 Maximum	4,000 Maximum	1,500 Maximum

Selection Guide for Daikin PTFE Fine Powders:

	F-104	F-104U	F-107	F-131	F-201	F-201L	F-205	F-207	F-208	F-301	F-303
Application											
Unsintered Tape	X	X	X	X							
Sealing Tape	X	X	X	X							
Low Specific Gravity Tape	X	X	X	X							
Flat Cable	X	X	X	X							
Tube Wrap			X	X						X	
Small Thin Wall Tubing					X	X	X	X	X		
Thin Wall Electric Wire (AWG 16 & smaller)					X	X		X	X		
Thin Wall Electric Wire (AWG 12 & smaller)							X				
Thick Wall Electric Wire (AWG 16 and larger)										X	X
Large Thick Wall Tubing										X	X
Heat Shrinkable Tubing					X		X			X	X
Co-Axial Cable		X	X	X				X	X	X	
Expanded		X	X	X							
Characteristics											
High Stretch Capability			X	X							
Low Extrusion Pressure						X		X	X		
Excellent Clarity							X		X		X
High Thermal Stability	X	X	X	X			X		X	X	X
High Green Strength					X	X					X
Enhanced Stress Crack Resistance							X				X
Dielectric Constant	2.05	2.05	2.07	2.07	2.08	2.08	2.08	2.08	2.10	2.07	2.08
Dissipation Factor x10 ⁻⁴	2.0	2.0	2.0	2.0	4.0	4.0	2.1	1.7	1.9	2.0	2.1

¹Test Method ASTM D-4895, ²Test Method JIS-K6891, ³The reduction ratio refers to the cross-sectional area of the resin inside the cylinder of the extruder (S₁) and the cross-sectional area of the resin in the die land (S₂), R. R. = S₁/S₂

Measurement Method: Cave resonance, 12 MHz, room temperature. Test Sample: 0.5 mm thick skived sheet from sintered block. Standard compression molding technique.

**Daikin
PTFE Fine Powder
Processing:**

The typical extrusion process for Daikin PTFE Fine Powder is shown below:



ASTM Classification of Daikin PTFE Fine Powders:

Product	ASTM	Type	Grade	Class
F-104	D 4895	I	2	A
F-104U	D 4895	I	1	A
F-107	D 4895	I	1	A
F-131	D 4895	I	1	A
F-201	D 4895	I	1 or 2	C
F-201L	D 4895	I	1 or 2	C
F-205	D 4895	I	3	C
F-207	D 4895	I	3	C
F-208	D 4895	I	3	C
F-301	D 4895	I	1	B
F-303	D 4895	I	4	B

Care and Handling of Raw Material:

Daikin PTFE fine powder must be in a completely powdered form to enable uniform pouring when it is blended with extrusion aid. Strong vibrations and shocks should be avoided during transport as these may cause lumps to form. Store the powder at 15°C (60°F) or below. Ideal storage conditions are a dry location with a temperature of 10-15°C (50-60°F). If lumps exist in the powder prior to blending with extrusion aid, the powder should be sifted, using a No. 8 mesh sieve. Care must be taken to pour the powder gently into the sieve and not crush the powder particles.

Packaging:

Daikin PTFE fine powders are packaged in 55.1 lb. (25 kg), nestable, plastic drums.

Quality/Regulatory:

Daikin PTFE fine powders comply with the requirements set forth in the FDA specification 21 CFR 177.1550. Daikin America's manufacturing facility is registered to ISO-9002 (Quality System) and ISO-14001 (Environmental Systems).

Safety:

When PTFE resins are heated to temperatures above 260°C, minor amounts of decomposition products may be given off. These decomposition products may be harmful, and inhalation of these fumes must be avoided. Ovens, process equipment and the working area must be adequately ventilated. For further information, please refer to the Daikin America Material Safety Data Sheet for these products and the "Guide to the Safe Handling of Fluoropolymer Resins 3rd Edition," published by the SPI Inc., The Society of Plastics Industry, Inc., 1801 K Street, NW, Suite 600K, Washington, DC, 2006-1301 (202-974-5200).

Medical Use:

These products are not specifically designed or manufactured for use in implantable medical and/or dental devices. They have not been tested for such applications and will only be sold for such use pursuant to contract containing specific terms and conditions required by us.

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