

The DAIKIN logo consists of the word "DAIKIN" in a bold, blue, sans-serif font. To the left of the text is a graphic element: a black triangle pointing downwards and to the right, with a blue triangle pointing upwards and to the right, overlapping the black one.

# Product Information

## ***Daikin PTFE***

## ***Aqueous Dispersions***

**Daikin PTFE dispersions are milky-white aqueous dispersions of stabilized minute particles of PTFE obtained by emulsion polymerization of tetrafluoroethylene. PTFE offers a broad range of desirable characteristics, including chemical stability, excellent electrical properties, heat resistance, chemical resistance, non-sticking and low-friction properties, and dielectric characteristics. PTFE Aqueous Dispersions are used in a wide range of applications.**

### **Thermal Properties:**

Daikin PTFE can be used continuously at temperatures of up to 260°C, and can be used for short periods at even higher temperatures. Daikin PTFE possesses excellent low-temperature strength, as well. Due to these superior thermal properties, Daikin PTFE dispersions are widely used as an impregnant in high-quality insulation material, etc.

### **Chemical Properties:**

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

### **Electrical Properties:**

Film made from Daikin PTFE dispersions displays an extremely low constant dielectric loss over wide frequency and temperature ranges. Glass cloth laminate, used as insulation material, takes advantage of this feature.

### **Low Friction, Non-Sticking Properties**

Under ordinary conditions of use, Daikin PTFE possesses a low coefficient of friction, and will therefore not cause stick-slip. It also possesses an excellent non-sticking quality which prevents most adhesives from adhering to it. Consequently, materials such as laminated films and coatings made of Daikin PTFE dispersions are used in parts for low-load/low-speed precision instruments, spinning/dyeing belts, etc.

### **Appearance:**

Daikin PTFE aqueous dispersions contain a new environmentally-friendly surfactant which provides for a clearer finish on the end product while leaving less residue than older surfactants.

### **Typical Applications:**

Manufacture of cast films, glass fabric laminates, battery binders and impregnating porous materials, Daikin PTFE dispersions can also be formulated into release coatings by adding fillers, adhesion agents, pigments and other additives.

## Typical Properties of Daikin PTFE Aqueous Dispersions:

	<b>D-210</b>	<b>D-210C</b>	<b>D-310</b>	<b>D-410</b>	<b>D-610</b>	<b>D-610C</b>
Polymer Type	Homopolymer	Homopolymer	Modified	Modified	Homopolymer	Homopolymer
Solids Content (wt %)	59-61	59-61	59-61	59-61	59-61	59-61
Surfactant Content (wt % on solids)	6.0-7.2	6.0-7.2	6.0-7.2	6.0-7.2	6.0-7.2	5.5-6.5
Specific Gravity @ 25°C	1.50-1.53	1.50-1.53	1.50-1.53	1.50-1.53	1.50-1.53	1.50-1.53
Viscosity (cp @ 25°C)	35 max.	35 max.	35 max.	35 max.	35 max.	35 max.
Critical Cracking Thickness (µm)	14	14	12	12	28	28
pH	8.5-10.5	8.5-10.5	8.5-9.5	8.5-10.5	8.5-10.5	9.5-10.5
Particle Size (µm)	0.22-0.25	0.22-0.25	0.22-0.25	0.26-0.30	0.26-0.30	0.26-0.30

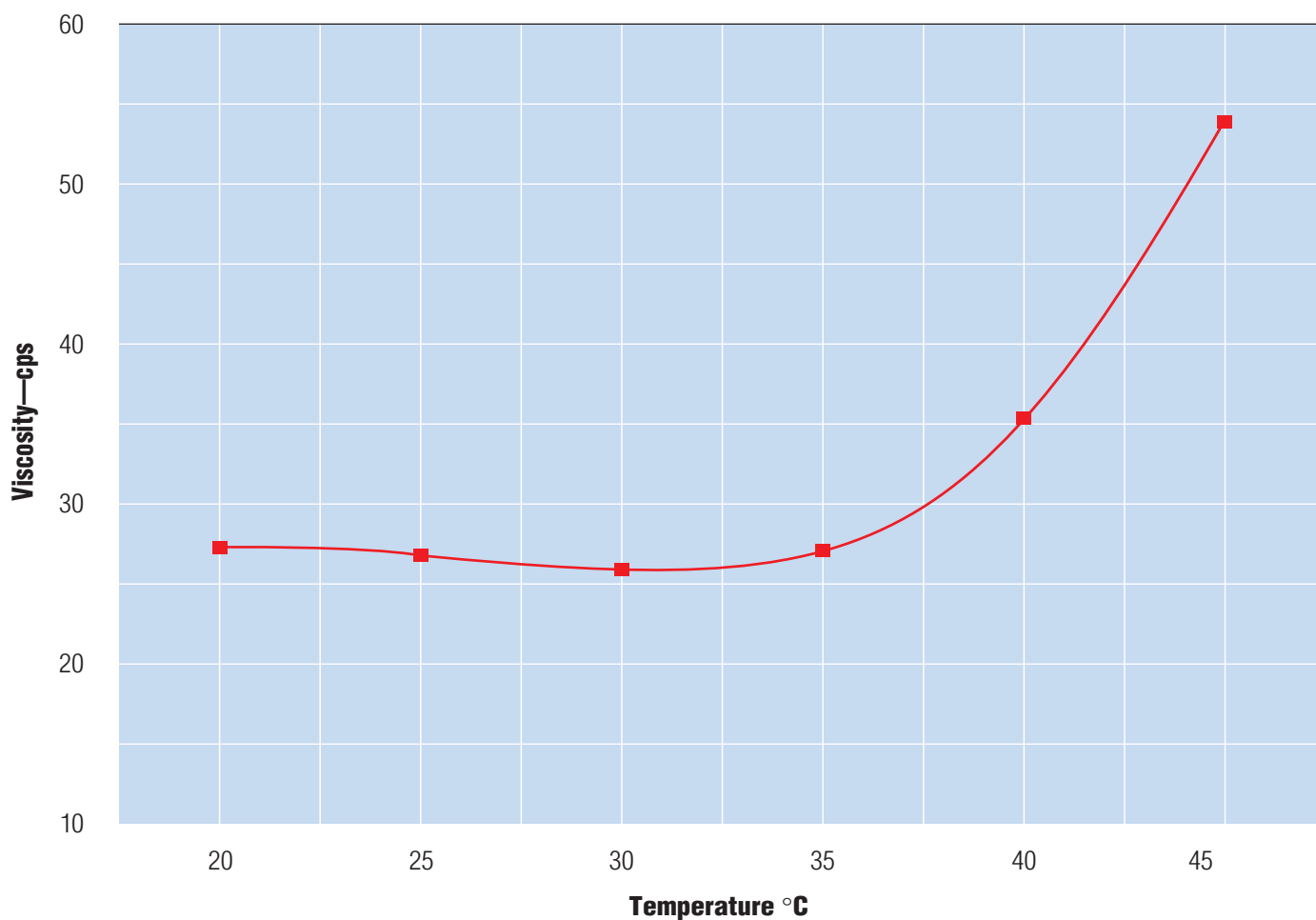
## Selection Guide for Daikin PTFE Aqueous Dispersions:

	<b>D-210</b>	<b>D-210C</b>	<b>D-310</b>	<b>D-410</b>	<b>D-610</b>	<b>D-610C</b>
<b>Application</b>						
Glass Coating	X		X		X	
Battery Binder		X				
Impregnation	X		X		X	
Packings	X				X	
Release Coatings			X	X	X	
Cast Film						X
<b>Features</b>						
High Molecular Weight		X				X
High Gloss			X	X		
Good Wear			X	X		
High Build					X	X
Low Color and Transparency	X	X	X	X	X	X
General Purpose	X					

## Relation of Concentration to Specific Gravity

Polymer Concentration (Mass %)	SpG. @ 25°C	g/l PTFE
35	1.25	437
40	1.30	518
45	1.34	604
50	1.40	694
55	1.45	799
60	1.51	909

## PTFE Dispersion Viscosity vs Temperature



## ASTM Classification of Daikin PTFE Aqueous Dispersions:

Product	ASTM	Type	Grade	Class
D-210	D4441	II	6	B
D-210C	D4441	II	6	B
D-310	D4441	II	6	B
D-460	D4441	II	6	B
D-610	D4441	II	6	B
D-610C	D4441	II	6	A

## Care and Handling of Raw Material:

Daikin PTFE Dispersions can be safely processed provided the following points of caution are heeded.

### 1. Normal handling:

Wear protective glasses and gloves, etc., when handling the substance.

Wash your hands and face well after handling the substance.

### 2. Storage:

Seal containers and store at a temperature of 25°C or below. The dispersion should be gently agitated on a periodic basis to prevent settling.

### 3. Treatment under abnormal conditions:

Rinse with large quantities of water if the substance leaks out or is dropped.

If the substance comes in contact with the eyes, immediately flush with water for 15 minutes or more. See a doctor for further treatment.

If the substance sticks to your skin, rinse well with soap and water. If there is any persistent irritation, receive treatment from a doctor.

## Packaging:

Daikin PFOA PTFE Dispersions are available in 210 lb. fiber drums and 2,000 lb. totes.

## Quality/Regulatory:

Daikin aqueous dispersions meet 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 is 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 we will only sell them for such use pursuant to contract containing specific terms and conditions required by us.

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